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Propagation of Fruit Plants

Part I—General Methods of Propagation

By W. H. Alderman
University of Minnesota

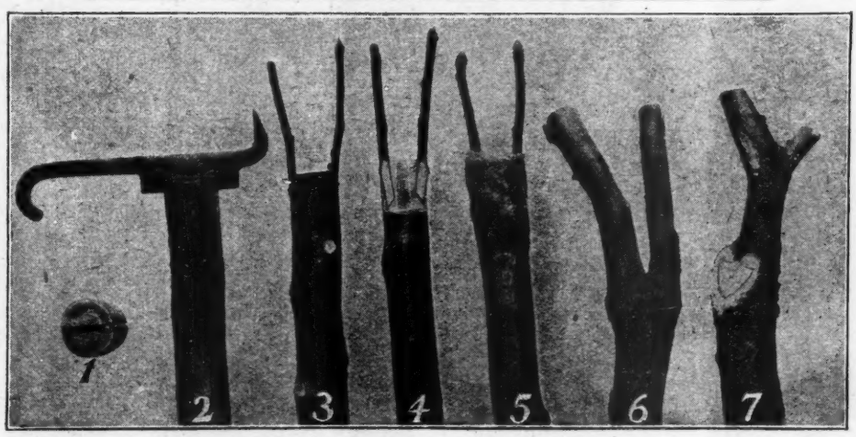
THE article presented on this page is the first of a series on the "Propagation of Fruit Plants." The author, W. H. Alderman, is Head of the Department of Horticulture at the University of Minnesota and is an authority on the subject. Succeeding installments will appear in each issue, except that of February (our spraying number), until the series is completed.

ALL FRUITS and nuts are commonly propagated by means of grafting, budding, cutting or some similar operation. Yet all fruit plants produce seed which is capable of producing new plants. The reason why fruit trees and other fruit plants are not generally grown from seed is due to the fact that the varieties will not come true when so grown.

In some regions, however, it has been the custom for countless generations to propagate such fruits as the apple, plum or prune from seed. These regions, mainly located in Central Europe, have developed certain types of fruit that can be grown from seed which are reasonably certain to produce a somewhat similar type for generation after generation. Even after centuries of seed production, however, there is a certain amount of variation in the seedling offspring, so much so that distinct varieties are difficult to identify.

Among the seed propagated wild fruits of our own country a similar variation can be observed. Since seed production merely guarantees the reproduction of the species and not the variety, horticulturists and fruit growers have been compelled to resort to various artificial methods of propagation, involving in each case the development of a new plant from a section or part of an old plant. This is known as asexual propagation as contrasted with seed grown plants which may be considered true sexual propagation.

The purpose of this series of articles will be to describe briefly and illustrate the several common methods of propagating fruit plants. It is not expected that special methods of propagation used in certain districts or developed for certain special types of trees or fruits will be discussed. The articles are designed more to satisfy the curiosity and interest of fruit growers than to impart new information to nurserymen. It is also intended to serve as a guide to the occasional fruit grower who is anxious to try his hand at growing a little nursery stock.



Successive stages in cleft grafting

1, Cross section of cleft graft showing scions in position. Note that the inner layers of bark (cambium) are in contact. 2, Splitting the stock with cleft grafting chisel; 3, scions in position; 4, part of stock cut away to show position of scions; 5, graft completed and waxed; 6, two years' growth on top-worked tree; 7, one scion removed to give the other a chance to develop.

Methods of Asexual Propagation

The artificial methods of propagation that must be used to reproduce varieties may be divided into three groups, *layerage*, *cuttage* and *graftage*. While there may be many variations in the methods used, they can all be easily grouped in the three categories just mentioned.

Layerage—Layerage is a process of propagation wherein the new plant is developed while still attached to the parent plant. This is perhaps the simplest and least artificial of all methods of asexual propagation. The term is used to cover a wide range of propagating schemes, beginning with such purely natural methods as the propagation of strawberries by making use of the runner plants that are formed naturally and the propagation of red raspberries through the natural spread of sucker sprouts. A type of layerage which is somewhat similar to propagation by runners is known as *horizontal layerage*. A branch or shoot is bent to the ground where it may or may not be placed in a shallow trench and covered at intervals with soil. In the case of a grapevine or similar plant, where a long cane or branch is available, it is possible to grow several individuals from one layer, since roots will strike and a shoot will form at every point covered with earth. A modification of this system is known as serpentine layering. The only difference between horizontal and serpentine layering lies in the bending of the shoot into a bow-shaped upright between the places where it is covered with earth. This gives an undulating serpent-like appearance to the layered shoot. At the point where the bent shoot is covered with soil, there is sometimes made a slight cut or split in the shoot. These cut areas will form a callus, which is thought to stimulate root production.

An interesting type of layerage is found in the propagation of the black raspberry. Here the shoots will strike root only when the tip is bent to the ground and covered lightly with earth. This method is known as tip layering and results in a single plant for each raspberry shoot or branch.

Perhaps the most useful method of layerage is known as mound layering, the common method of gooseberry propagation. There are several ways of manipulating the plants in mound layerage. A common method is to prune the plant back nearly to the ground line. If this is done in the spring before growth starts it will stimulate a rank growth of the sprouts. In the early summer a mound of earth is thrown up about the sprouts to a height of about eight or 10 inches. Unless followed by a remarkably dry season, each sprout will strike root into the mound of earth and in the fall or following spring may be removed and lined out in the nursery row for further development. A somewhat similar method may be followed which does not involve the pruning back of the plant. The mound may be thrown up about the old plant slightly higher than will be necessary in the pruned back condition, or the low canes may be bent to the ground in either direction and so covered with earth that only about the upper fourth of their length protrudes. The smaller branches and shoots in this mounded plant will strike root and may be separately removed and lined out as indicated above.

Cuttage—Cuttage is the next step in propagation and is considerably more artificial than layerage. It involves the propagation of new plants from small sections completely removed from the

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Why We Eat More Cranberries

By Carl R. Woodward

SO STRONG is tradition in governing our habits that until recently the great body of American housewives scarcely ever thought of cranberries as an article of diet at any time except the annual festival. But times have changed. It took a combination of some big cranberry crops, low prices, the enterprise of the growers, and printers' ink, to turn the trick. Large quantities of cranberries are still consumed at Thanksgiving time, but their sale doesn't stop there. The housewife has found that they are good before and after. While cranberry sauce is still regarded as delicious as it ever was, cranberry pie, cranberry ice, cranberry butter, cranberry jelly and cranberries in other forms have been made just as tempting to the palate.

All of this has happened because American cranberry growers have had intelligence enough to cooperate on a businesslike basis. Thirty years ago they organized the American Cranberry Exchange. Although difficulties have been encountered, the exchange has been gradually built up until it is now one of the most effective co-operative organizations in the world.

Three States Produce Most of the Crop

America's annual crop of some 500,000 barrels is produced principally in three states — Massachusetts, New Jersey and Wisconsin, where large areas of bog land suitable for cranberries are found. Massachusetts usually leads in the production, although occasionally she has yielded first place to New Jersey. Wisconsin ranks third, producing less than one-tenth of the total crop.

Before the organization of the American Cranberry Exchange, the growers had their ups and downs, and the "downs" sometimes took them pretty deep. Because of the many risks in growing cranberries, there were large fluctuations in the annual yields. With limited marketing facilities available, a big crop invariably meant low prices; in fact, the gross returns from a large crop were usually less than the receipts from a short crop. The growers saw the need for improvement in the marketing machinery, and as far back as 1895 took the first step toward co-operation.

Several local co-operative groups were formed during the next 15 years in Wisconsin, Massachusetts and New Jersey. They did business with some degree of success, but were not equal to handling a bumper crop. Finally, in 1911 all the locals got together and organized the American Cranberry Exchange, a central sales agency, to handle the crop for the various locals. A. U. Chaney, former manager of the Wisconsin Cranberry Sales Company, was made general manager of the exchange.

The experience of this body henceforth demonstrated the first great lesson in marketing—*It pays to organize.* From 1914 to 1919 between 50 and 60 per cent of all American cranberries were marketed by the exchange. Since 1920 it has marketed 62 to 66 per cent of the crop.

Quality and Service First

But there is a lot more to marketing than organization. The next step was to improve the quality of the berries put on the market. Strict grading was established, and the berries of different varieties and quality were sold under different brand names. The confidence of the dealers and of the consumers was gradually built up, and the members realized better profits than they had been accustomed to. So another lesson was demonstrated—*It pays to standardize.*

But when 1914 brought the largest crop on record, the exchange, depending upon its old methods, was unable to handle the situation. The bottom went out of the market. It was evident that the trade as it then existed could not absorb a big crop. All was well if the crop was not above the average, but any more created a grave problem. An average crop the next year gave a breathing spell, but in the summer of 1916 the exchange again saw a big crop on the horizon. What was to be done to avoid a repetition of the 1914 disaster?

It was then that a hackneyed slogan took on a new meaning and became a part of the creed of the cranberry growers—*It pays to advertise.* It had worked for corn-flakes, toothpaste and chewing gum, reasoned Mr. Chaney; why not for cranberries? He persuaded the directors to try it out. The city of Chicago was picked for the test, and about $23,000 was spent in newspaper ads, street-car cards, printed bulletins and service work. The results were as surprising as they were satisfying. The consumption of cranberries in Chicago jumped almost 50 per cent above that of the previous year, while in most other large cities, where no advertising had been done, the consumption fell off.

The year 1918, however, furnished the real test. Under war conditions sugar was scarce and high—and cranberries take a lot of sugar. Another big crop was ripening. Some aid must be had to market it. So the first national advertising campaign was inaugurated, and $54,000 was spent in the 30 days following October 15. The results were most gratifying. The entire crop was disposed of at a good price. Just what would have happened had no advertising been done, no one knows. But the growers who tasted the bitterness of previous "bumper crops" will tell you they are satisfied in their own minds how they would have fared.

Since then the exchange has been going more and more heavily into advertising. In 1922 it spent $180,000; in 1923 nearly $200,000. Large yields are no longer looked upon as a liability, with the instrument of advertising to stimulate demand. Mr. Chaney says this coming season the exchange is going to double its appropriation for advertising over last year.

The advertising of the American Cranberry Exchange is not limited to display ads and running notices in the newspapers and trade journals. Some of our most popular magazines carry advertisements of "Eatmor" cranberries. Nor does it stop here. Pass a grocery store and you see an attractive window card displaying the price of cranberries. Call on your grocer and he will likely hand you a neat folder printed in colors and telling in detail "Ten ways to Eatmore Cranberries," or a booklet that gives the story of cranberry growing, or another that sets forth in convincing terms the health-giving qualities of the berry. It is not surprising that after the experience of the past 10 years, the American Cranberry Exchange believes in advertising.

The exchange controls about 75 per cent of the Wisconsin crop and 65 per cent of the Massachusetts and New Jersey crops. In 1924 it sold 360,383 barrels for its members at an average price of $9.96. The total business amounts annually to between three and four million dollars.

Perhaps no better indication of the efficiency of the association can be shown than its low operating expense. Here is what happened to "the consumer's dollar" spent for "Eatmor" cranberries in 1920:

Retailer	22.4 cents
Wholesaler	11.2 cents
Transportation	7.4 cents
Advertising	1.5 cents
A. C. Exchange	3.5 cents
Grower	54.0 cents

Aside from advertising, which took only 1.5 per cent, the expenses of the exchange and the locals were only 3.5 cents of the dollar. The grower received 54 per cent of the retail price—a very high proportion as compared with other commodities. It is believed that this cost of marketing is one of the lowest, if not the lowest, among the fruits.

Adjusting Price to Supply and Demand

But "hit or miss" advertising means so much money wasted. Advertising must be so gauged as to make demand correspond with supply. The exchange studies the field, and advertises according to the conditions it finds. Each year, in advance of the shipping season, the probable supply is determined through surveys and reports. Also, through special agents who study conditions in the various markets, the exchange keeps its finger on the pulse of the buying public and is able to tell pretty closely what the demand is likely to be. And as has been mentioned, advertising is used as needed to influence this demand. Then when the shipping season begins, the exchange names an "opening price," determined at a level that will assure a steady and uniform flow of berries to market through the season. The exchange endeavors to arrive at a price that will assure the grower a fair profit, but which will also permit the consumer to use a fair share of the crop, and which will encourage further trading. Hence the fourth great lesson shown—*It pays to stabilize.*

Although the exchange handles more than half the American crop, no attempt is made to monopolize supply, or rigidly to control price. Care is taken to avoid too high a figure at the beginning; in fact, the price is more likely to rise than to fall as the season progresses. Unduly high prices are discouraged, for it is recognized that eventually they will harm the market.

This was illustrated in the price fluctuations last year. The preliminary estimates of the crop were rather low. After Thanksgiving, because of light stocks in dealers' hands, there was a large demand and prices advanced rapidly. By the middle of December, however, the markets were well supplied, and then it developed that the crop was 10 per cent larger than had been estimated. The market reacted and by the middle of February was down to the original opening basis.

The price dropped because it had been allowed to go too high, explained Mr. Chaney in his report for the season. "We believe this reaction was caused mainly by the fact that the

(Concluded on page 17)

1—Harvest scene in a cranberry bog. A clean swath is made across the bog by a long line of pickers. The "row boss," with stick in hand, sees to it that the pickers attend to business. 2—A quicker way to pick cranberries is by means of specially designed scoops, but these injure the vines more than hand picking. Center —A cluster of Howes cranberries. 3—Receiving cranberries from the pickers. 4—Storage house at Whitesbog, the largest cranberry farm in the world, located near Browns Mills, N. J.

National Rootstock Survey

By M. J. Heppner
University of California

DURING the past few years the Division of Pomology of the University of California has been making annual surveys of California nurserymen in order to ascertain the percentages of the various rootstocks used for all deciduous fruits. Reports of these surveys have appeared in the AMERICAN FRUIT GROWER MAGAZINE from time to time, the last report appearing in the March, 1925, issue. These surveys have brought out some very interesting and valuable information, not only for fruit growers but for those who are interested in rootstock work, particularly nurserymen and horticultural investigators.

In order to get some idea of the conditions in other parts of the country relative to the demands for the various stocks, it was thought advisable to enlarge the scope of the survey to include nurserymen from all major fruit growing sections in the United States. Accordingly, questionnaires were sent out to about 200 nurseries scattered all over the country asking for figures showing the number sold of each kind of fruit tree on each type of stock commonly used for the species. In reality, a request was made of the nurseries for a list of trees sold during the past planting season, 1924-25. The nurserymen were assured that the figures would be treated strictly confidential, and the degree of co-operation was really surprising. Of approximately 200 questionnaires sent out, 125 were returned, a very large percentage indeed. Ordinarily the returns received from most types of questionnaires is less than five per cent. The large number of returns showed conclusively that the nurserymen of the country are willing to give any information that may prove of value and interest to those who are primarily interested in fruit growing. (The writer would like to take this opportunity to express his appreciation to those who so willingly co-operated in this survey.)

The final results of the survey show that figures were supplied for approximately 13,000,000 budded or grafted trees sold during the season 1924-25. Although this does not represent all deciduous trees sold in the country during that period, the percentages are probably representative of the conditions existing in the country at large.

As would be expected, certain portions of the country are using certain stocks in greater percentages than others. Also, some sections are using stocks which are not used at all in other sections. This, of course, is due to variations in soils, climate, water conditions, etc. Certain local conditions are such that many regions have developed stocks particularly adapted to these conditions. However, this cannot be said with any degree of assurance until these stocks have been given a trial under conditions other than those for which they have been used. For instance, we find that the American or native species of plums is being used to a great extent in sections where a hardy root is needed. In milder sections where hardiness is not a requirement, we find that this stock is not used as a foundation for orchards.

Taking the country as a whole we find that the following conditions existed the past planting season:

	Per cent
Sweet Cherries Propagated on:	
Mazzard Root	42.6
Mahaleb Root	54.0
Morello Root	3.4
Sour Cherries Propagated on:	
Mazzard Root	5.0
Mahaleb Root	95.0
Plums Propagated on:	
Americana Plum Root	58.1
Peach Root	18.5
Myrobalan Root	15.8
Marianna Root	5.9
Apricot Root	1.4
Sand Cherry	.28
Almond	.02
Prunes Propagated on:	
Myrobalan Root	49.1
Peach Root	39.0
Almond Root	6.12
Apricot Root	2.1
Americana Plum Root	2.1
Davidiana	1.08
Sand Cherry	.5
Pears Propagated on:	
Japanese Root	56.1
French Root	25.8
Quince Root	6.0
Ussuriensis Root	4.4
Old Home on French	3.1
Calleryana	2.3
Old Home on Ussuriensis	1.8
Own Roots	.3
Kieffer Roots	.2
Apricots Propagated on:	
Peach Root	65.4
Apricot Root	26.2
Myrobalan	7.5
Davidiana	.6
Sand Cherry Root	.3
Peaches Propagated on:	
Peach Roots	96.9
Myrobalan Root	1.4
Apricot Root	.7
Marianna Root	.52
Davidiana Root	.28
Almond Root	.08
Sand Cherry	.07
Chickasaw Plum	.05
Almonds Propagated on:	
Peach Root	55.5
Almond Root	42.3
Americana Plum Cots	2.2

Mahaleb Roots Preferred for Cherries

The above figures bring out some very interesting points. Referring to the cherries we find that the Mahaleb root is preferred for both sweet and sour varieties. It was in slightly greater demand than the Mazzard for the sweet varieties, while for the sour varieties practically the entire demand was for the Mahaleb. The reason for the Mahaleb being in greater favor for the sweet cherries can be accounted for by the fact that certain sections of the country have gone in for this root at the almost total exclusion of the Mazzard. A few nurserymen reported several cherries on Morello root, of which there are many types. Just what types were used is not known, with the exception of those reported by California nurserymen.

Stocks for Plums

The Americana plum or native plum was the most favored stock for plum varieties, well over one-half of all trees sold being on this particular root. This is the favored stock in the middle west and eastern states, where large numbers of trees are sold annually. The peach and Myrobalan roots were in second and third place, respectively, while the Marianna plum, apricot, sand cherry and almond follow in order. Where a hardy root is required the native root naturally is used. Where hardiness is not the important factor, we find the peach and Myrobalan in heavy demand. The Marianna plum root is confined to only a certain section of the country, as will presently be shown, where it is giving splendid results. The sand cherry (*Prunus besseyi*) also finds a place in certain sections of the country.

Myrobalan Stocks for Prunes

The production of prunes is confined mostly to the Pacific Coast states, where the Myrobalan root is the favored stock, with the peach in second place. While the native plum root is the favored stock with the plums, it receives but little attention from prune growers, due chiefly to the fact that the prune is not produced in sections where severe winters prevail. It will be noted that the Davidiana, or Chinese wild peach, is given as a stock for the prune. This stock has proven to be very resistant to alkali soils but how it is going to behave as a stock for prunes is yet to be seen. In all probability, it will prove as successful as the ordinary peach stock as far as affinity is concerned.

Japanese Roots in Demand for Pears

Surprising as it may appear to some, the Japanese stock is in much greater demand than the French for pear trees. As far as California is concerned, these stocks have been changing place for first honors, due principally to blight resistance, differences in capability of withstanding "wet feet," oak-root fungus, woolly aphis, etc. Whether similar fluctuations have taken place throughout the country as a whole cannot be stated, due to lack of figures. Quince roots have been in large demand in certain sections of the country where the dwarf pear tree is found advisable. The Ussuriensis and Calleryana roots are being used because of their apparent resistance to blight. There is some question in the writer's mind relative to the advisability of using the Ussuriensis, owing to the great variation found to exist in seedlings. However, the resistant types surely have their place. To be true, the Ussuriensis was the "talk of the town" a few years back, but in all probability the Calleryana has come to replace it. Many nurseries have sold double-worked trees such as Old Home on French in order to get a resistant root and body to the tree. This procedure is no doubt one of the best to follow.

Roots for Apricots and Peaches

The peach root was the favored stock for apricots, with the apricot root itself coming next, followed by the Myrobalan, Davidiana and Sand Cherry. The behavior of the apricot on Davidiana and Sand Cherry is doubtful, especially the latter. However, the Davidiana will no doubt find a place as a stock for apricots.

Although many different kinds of roots are in use as stocks for peach trees, the peach root is practically the only root that is of importance. Certain local conditions often require another type of root, but for most conditions this root has proven satisfactory. There is some doubt as to the behavior of peaches on Myrobalan roots, although some varieties may do much better than others. As a rule, the trees are short-lived. The apricot has given some success as a stock, while it is claimed that trees on Marianna are short-lived. The Davidiana is giving excellent results under California conditions in highly alkaline soils. The behavior of the Sand Cherry and Chickasaw plum as a commercial proposition is also doubtful.

Peach and almond roots seem to be the favored stocks for the almond, which is grown in but few sections of the country.

Variations in Different Sections

In order to show variations that exist in different regions, as far as the demand for the various rootstocks is concerned, it was thought advisable to divide the country into seven sections. This, of course, is nothing more than an arbitrary division, but it is the only way out to show existing variations. The seven groups are:

1. North Atlantic states, including those states from Canada to North Carolina bordering the Atlantic Ocean.
2. Southern states.
3. North Plain states.
4. Central states.
5. Mountain states.
6. Northwestern states.
7. California.

Owing to lack of space, but three complete sets of tables will be presented, namely, those representing sections 1, 2 and 7. However, reference will be made to the other sections as well during the discussion.

Mazzard Root for Sweet Cherries in California

In looking at the figures for the sweet cherries, we find considerable differences in the preference of the three sections. Mahaleb is the favored root in the North Atlantic states and southern states, while in California we find the Mazzard root the favored stock. The Northwest section is the only other region where the Mazzard is the root in greatest demand. All other sections of the country favor the Mahaleb as a stock for the sweet cherry.

Although some sections reported the sour cherry on Mazzard root to some extent, none reported preference for it. As a result, we find that

(*Concluded on page 24*)

SUMMARY OF THE ROOTSTOCK SITUATION.

	North Atlantic States. Per cent.	Southern States. Per cent.	California. Per cent.
Sweet Cherries Propagated on:			
Mazzard Root	30.2	0.	72.5
Mahaleb Root	67.0	100	15.5
Morello Root	2.8	0.	12.0
Sour Cherries Propagated on:			
Mazzard Root	5.6	2	No report
Mahaleb Root	94.4	98	....
Plums Propagated on:			
Americana Root	0.	14.7	0.
Peach Root	17.5	47.3	54.5
Myrobalan Root	80.3	0.	40.4
Marianna	0.	32.4	0.
Apricot	0.	5.6	4.8
Sand Cherry	2.2	0.	0.
Almond	0.	0.	.3
Prunes Propagated on:			
Myrobalan Root	No report	No report	55.8
Peach Root	....	....	32.3
Almond	....	....	6.2
Apricot	....	....	3.8
Americana Plum	....	....	0.
Davidiana	....	....	1.9
Pears Propagated on:			
Japanese Root	25.9	78.9	51.9
French Root	22.9	18.8	29.3
Quince	20.2	.9	4.0
Ussuriensis	11.6	0.	0.
Old Home on French	0.	0.	8.3
Calleryana	9.4	0.	3.4
Old Home on Ussuriensis	0.	0.	3.1
Kieffer	0.	.5	0.
Own Roots	0.	.9	0.
Apricots Propagated on:			
Peach Root	91.9	65.5	36.5
Apricot	1.4	34.5	45.8
Myrobalan	5.3	0.	16.2
Davidiana	0.	0.	1.5
Sand Cherry	1.4	0.	0.
Peaches Propagated on:			
Peach Root	95.6	96.7	97.6
Myrobalan Root	3.6	1.0	0.
Apricot	0.	1.0	1.2
Marianna	0.	1.0	0.
Davidiana	.4	.1	1.2
Almond	0.	.1	0.
Sand Cherry	.4	0.	0.
Chickasaw Plum	0.	.1	0.
Almonds Propagated on:			
Peach Root	No report	No report	60.2
Almond Root	....	....	39.8

American Fruit Grower Magazine
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Observe the Spirit of Thanksgiving Day

THANKSGIVING time is almost here. Most of us will have a monstrous dinner. Some of us will visit relatives or friends for the day. Others will observe the day in the form of a home-coming, and all the children and grandchildren will be there. But how many of us will pass through the day and beyond it without catching the full spirit of the occasion?

Thanksgiving Day is an American institution. The Pilgrims, after suffering the severest kind of hardships, were thankful for the good fortune which they met and they set aside a special day in the late fall to give thanks. Since that time the day has been observed every year in America, and many foreign countries have adopted the idea. The day is observed by creeds and classes of all kinds all over the world.

In our busy lives we meet reverses of all kinds and we see much bad in the world about us. On every hand we see people who are ready to take advantage of others. Accounts of murders, divorce, robbery and scandal fill our newspapers. Even in our own immediate affairs we meet such things as crop failures, damage from hail, unfavorable weather at critical periods, frost injury, bad marketing conditions, fire, sickness in the family, or even death of a loved one. It is awfully easy to see the dark side of life and to allow ourselves to fall into the mood of thinking there is nothing to be particularly thankful for in this cruel world of ours.

But wait a moment! Haven't we many things to be thankful for, after all? Don't we have, first of all, a wonderful world to live in? Isn't it great to know that you can go to bed every night and rest content that the sun will appear again in the morning "right on the dot"? Isn't there a lot of satisfaction, as winter approaches, in feeling that the sun will again become warm in the spring, and the weather conditions favorable, so that we can produce another crop of fruit? Isn't it wonderful to watch our kiddies, our animals and our crops grow? Think of the satisfaction there is in the splendid tools and equipment we have nowadays with which to do our work. Think of the facilities for travel and transportation as a result of our highways, our railroads, our aeroplanes and our boat lines. How wonderful it is to sit in our easy chairs at home and listen over radio to a world series baseball game in Washington, a sermon in Kansas City, a football game at Berkeley or a concert in New York! Think of the thousands of good people we meet, of the many good deeds that are performed in the world, and of the great country in which we live. With all of its faults, it is the greatest country on earth.

Perhaps many of us have had misfortunes the past year. Perhaps bad luck has seemed to follow us or we have not done as well as we had hoped to do. But notwithstanding all of these things, there are very few of us who cannot find many more things to be thankful for than to be sad about. God has been good to us again during the past year. Let us bear these things in mind on this Thanksgiving Day and render thanks for our blessings.

The Series on Propagation

ABOUT a year ago we published a series of articles on the apple by J. R. Magness which brought unusual approval from our readers. This series convinced us that other articles on fundamental principles of fruit growing would be welcomed.

Accordingly, we are beginning in this issue a series on the propagation of fruit plants. This is a subject of great importance, one that is not thoroughly understood by many growers, and one which every grower must understand in order to make his orchard operations most successful. Every grower should be thoroughly familiar with the materials and methods used in propagating fruit plants. He can neither buy plants intelligently from a nursery nor propagate his plants at home to the best advantage without this information.

The author of this series is Prof. W. H. Alderman, Head of the Department of Horticulture at the University of Minnesota. He needs no introduction to persons who have kept in touch with developments in American horticulture. He has given special attention to propagation matters and the information he presents is, therefore, entirely trustworthy.

It may seem somewhat out of season to some persons to begin the series at this time. However, it must be remembered that the propagation of some plants is begun in the fall and, furthermore, that preparations during the early winter are necessary in the case of many fruit plants. Again, wise growers wish to know about such matters well in advance of the time they actually perform the operations; they can then lay their plans most intelligently. Another reason why we are beginning the series at this time is because we wish growers to have all this information before them by the time spring arrives so that they can use it in next year's operations. An additional installment will appear in each issue, except that of February (our spraying number), until the series is completed.

Southeastern Fruit Growing

WE ARE constantly in search of new developments that will make the magazine of greater value to our readers. Besides the first installment of the series on propagation, there is another feature in this issue to which we wish to call especial attention.

The recent trip of the Editor to the Southeast convinced us of the growing importance of the fruit industry in that section. In order to better serve the growers of that territory, we have arranged with Dr. O. F. E. Winberg of Alabama to write a regular department on southeastern fruit growing. His first installment appears in this issue.

Dr. Winberg has been located in Alabama for 20 years and has been closely associated with the development of the fruit industry there as well as throughout the Southeast. He is president of the Gulf Coast Horticultural Society and president and manager of the Gulf Coast Citrus Exchange. He owns and manages extensive plantings of Satsuma oranges and pecan groves. Furthermore, he is well trained from a technical standpoint.

We feel gratified in securing the services of Dr. Winberg. His material will pertain not only to fruit growing in his immediate territory, but it will apply to fruit growing throughout the Southeast, since he is familiar with this entire territory. We believe, furthermore, that his articles will prove helpful to citrus growers in Texas, Arizona and California, as well as interesting to growers all over the country.

Fight on Child Labor Amendment Revived

THE AMERICAN Federation of Labor at its recent convention voted to continue its efforts to secure the ratification of the child labor amendment to the federal constitution.

That amendment was badly defeated last winter by most of the state legislatures. The federation now proposes to take advantage of a technicality to secure the desired ends.

Certain court decisions have established important precedents regarding amendments to the constitution. A favorable vote of any state on an amendment stands indefinitely and cannot be revoked. States which have voted against an amendment can reconsider their vote and change the same at any time.

It is now the plan of the federation to continue the fight in states which have voted down the amendment. Through changing personnel in legislatures, the federation hopes in time to get a sufficient number of states, one by one, to change their votes to bring about ratification.

This method on the part of the federation seems to us hardly fair. It indicates a willingness, and even a desire, to force the child labor amendment upon the country even though it may not have the support of a majority of the people at the time of its final ratification.

In view of the importance of this whole question, the various agricultural organizations should, in our opinion, ask Congress to enact legislation limiting the time during which a given amendment may be considered. A five-year time limit would be very appropriate.

As we pointed out in editorials last winter, the child labor amendment in its present form is not a good thing for agriculture and horticulture. Farmers and fruit growers should use their influence against it both as individuals and through their organizations.

Eliminate the Automobile Tax

FARMERS make up about one-third of the population and buy more automobiles and trucks on the average and on the whole than any other large class of Americans. Taxation is a vital problem to the farmer and therefore it would be to his advantage to have the sales tax on automobiles and trucks eliminated. The government is now considering further tax reductions. Farmers and fruit growers should in their own interests urge their representatives and senators in Congress to eliminate the automobile tax.

PLAN to attend the annual meeting of your horticultural society this winter. You will learn of the latest developments in the industry and meet leaders in the business there.

Rambles of a Horticulturist

By C. E. Durst

AFTER making the visit to North Carolina, which was described in the October issue, I proceeded down into Georgia toward Florida. Some peaches were still moving out of northern Georgia near Atlanta, but all of the crop had been picked in the Fort Valley district.

The Georgia Peach Growers' Exchange

I found that many of the growers were away on vacations following their hard work during the harvesting period, but I had an interesting interview with W. C. Bewley, secretary, treasurer and manager of the Georgia Peach Growers' Exchange, with headquarters at Macon. Mr. Bewley and his associates have had a difficult year in operating the association in view of the bad marketing conditions existing during 1924, but they seem to be overcoming the obstacles nicely. In Mr. Bewley's opinion, co-operative marketing represents a new principle which growers must learn through gradual education. He places much confidence in young men, particularly college-trained young men, and he believes they will in time prove the principal factors in bringing about the growth of the co-operative movement.

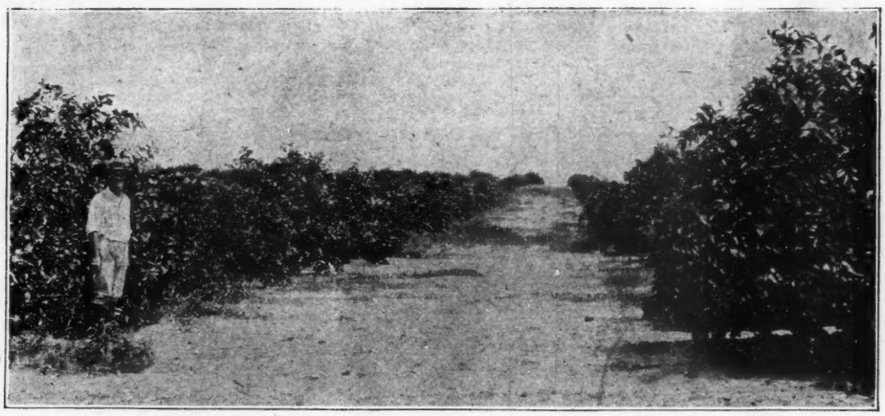
The quality of Georgia peaches was excellent this year. Because of the dry weather, there was little development of brown rot in transit. The dry weather, however, did not materially affect the size of the fruit, except in the case of Hileys. Prices were quite satisfactory due to the prevailing opinion that a short crop would be produced, to short crops of small fruits in northern states, and to the good carrying power of the early shipments. Last winter many trees of the early varieties were removed. Owing to the peculiar marketing conditions this season, these early varieties brought especially good prices. Mr. Bewley fears that this may cause some growers to begin planting the early varieties again.

Government Laboratory at Fort Valley

I had a brief visit at the government laboratory at Fort Valley, which has done valuable work for the Georgia growers. In the absence of O. I. Snapp, Mr. Alden showed me the work in progress. The station just now is investigating the oriental fruit moth. Thousands of the insects were daily being hatched in a screened enclosure and studied. This insect is present in Georgia, but it has not become a serious factor to date. The last generation appears rather early. A large proportion of the larvae which hatch from the cocoons, die during the long autumns prevailing in Georgia. If the insect should develop another generation before spinning the cocoons, it could become a very serious factor.

Nematodes are a serious factor in Georgia peach culture. Resistant stocks are being developed which promise to relieve this problem. The station has been investigating the so-called cumulative damage from oil sprays. Trees sprayed with oils for three years have shown no damage to date. I saw peach trees sprayed three times with oil sprays during the past season and they looked fully as healthy as trees not so sprayed. Mr. Alden led me to a Celeste fig tree where I obtained my first taste of fresh southern figs. They were very fine indeed, but I would not want to eat very many of them at one time.

A Georgia peach orchard in its second year, interplanted with cotton



A three-year-old grapefruit grove on the grounds of the Florida Citrus Experiment Station, Lake Alfred, Fla.

The National Pecan Growers' Exchange

Proceeding on the way, I stopped at Albany in southern Georgia to visit the National Pecan Growers' Exchange. W. P. Bullard, the manager, told me all about the exchange and took me on a long drive down the paved Dixie highway leading into Florida. For a considerable distance this road is lined on both sides with pecan groves, varying in age and stretching in some places as far as the eye can see. There are about 40,000 trees in the Albany district, bearing and young. Schley is the most popular variety, with Stuart a close second. The most serious pest is pecan scab. Unfortunately, some of the best varieties are rather susceptible to this disease. Bordeaux mixture is giving the best control, but the height of old trees makes application difficult. Dusting by aeroplane, in Mr. Bullard's opinion, would be a practical proposition if an effective fungicide were known. The Bordeaux dust now available is not efficient in controlling scab.

The exchange marketed 1,200,000 pounds of pecans in 1923. Because of the large production, some nuts were held over in cold storage. Practically all of these have now been sold at prices ranging from 65 cents per pound for the best varieties to 30 cents per pound for the lower grade nuts. Fortunately for the pecan growers, any surplus production can still make a profit should reductions in prices become necessary.

Mr. Bullard is a believer in a co-operative management which understands the grower end of the business as well as the marketing end. Not only does he believe this, but he is practicing it as well, for he has extensive groves in the vicinity. He questions whether managers taken from the produce trade and who do not have a thorough understanding of or sympathy for the grower viewpoint can ever become effective co-operative managers.

Practice in Budding Pecan Trees

I was much interested in some pecan nurseries which Mr. Bullard at Albany, equipped with several first-class grading machines. The best is one recently invented by Mr. Bullard and patented in the name of the exchange. Pecans from several states, including North Carolina, are sent to this warehouse for grading and sale. It is planned to build other warehouses as the industry grows. Mr. Bullard feels that as the production of pecans increases, it will be necessary to lower prices somewhat and to advertise extensively in order to place pecans among the staple foods so that they will be consumed by more people. At present too many persons regard them as a luxury. With this in view, Mr. Bullard is urging growers to cut costs of production to the lowest possible figures and to adopt methods that will produce good crops of high quality nuts, in order that they may be able to hold over very nicely in cold storage. Government tests have shown practically no deterioration after three years when the nuts were kept at temperatures ranging from 32 to 35 degrees Fahrenheit.

Well Equipped Warehouse at Albany

The exchange has a fine warehouse

The effect of rootstocks on the growth and vigor of orange trees

Left: Three-year-old Valencias on rough lemon stocks. This stock produces a vigorous, early producing tree, but the fruit on most soils is rough and of somewhat inferior quality. Right: Three-year-old Valencias on sour orange stocks. The trees are slower growing than those on rough lemon stocks, and slower to come into bearing, but the quality of the fruit is superior.

showed me. He stated that it is common practice to bud the seedlings as they reach a certain size. The first year the largest seedlings are budded; the second year another lot is budded; and the third year the remaining third is budded. In the case of apples and citrus fruits, it has been demonstrated that the faster growing seedlings make the best producing trees, and there are good reasons for believing this principle holds true in the case of nut trees also. The writer would certainly use only the most vigorous seedlings for propagating and would discard all others.

College and Station at Gainesville

Proceeding into Florida, I first visited the college and station at Gainesville. I was particularly impressed with the numerous long-leaf pines growing on the campus. These wonderful trees, laden with Spanish moss, give this campus an individuality that is not duplicated by any I have seen. Dean W. L. Floyd, a member of our Advisory Committee, showed me the work in progress. Gainesville is a little far north for the most successful culture of citrus fruits, aside from Satsuma oranges, and therefore most of the citrus experimental work is done at Lake Alfred. The most interesting thing I saw at Gainesville was a fine lot of Crotolaria, a new leguminous cover crop which is giving excellent results in Florida. Besides showing me the work and acquainting me with his associates, Dean Floyd gave me much information that proved helpful in the remainder of my visit in Florida.

The Real Estate Boom

At Orlando I came into close touch with the real estate boom. Many people told me that there were more people in Florida at that time (August) than were present at the height of the tourist season last winter. There were real estate firms everywhere. I stopped to see the editor of the local paper and besides his own place of business there were five others in the half block, all occupied by real estate firms. On the second story there were several more. The real estate men were so numerous that they wore badges so they would waste no time in soliciting each other. Subdivisions were being established in every direction and for miles into the country. It was nothing, as one walked down the street, to overhear men talking in terms of a half million, a million, or two million dollars. One wonders how long the boom can last at the present rate. Most of the leaders with whom I talked feel that the boom will continue at its present height for some little time but that it will eventually subside to a certain extent. They believe, however, that Florida is headed toward steady development.

The real estate boom will undoubtedly have its influence on the fruit

(*Concluded on page 34*)

A Georgia peach packing house. It is equipped with one of the most modern sizers and other necessary machinery, all operated by an electric motor

Storage Scald in Barreled Apples

By C. E. Baker

Purdue (Indiana) Agricultural Experiment Station

STORAGE scald is probably the most serious disease of apples during the storing and marketing periods. Often the disease is not evident at the time the fruit is removed from storage, but the same fruit frequently becomes brown and discolored after it has been held in a warm temperature for a few days.

Due to the treacherous behavior of this disease, it has a decided effect upon market conditions. Many buyers are naturally suspicious of storage apples, as their value is often greatly reduced by the appearance of the disease soon after their removal from storage. Since some of the choicest varieties are the most susceptible to storage scald, the result is that the retail merchants avoid these varieties when buying apples out of storage and in their place secure varieties less susceptible to storage scald regardless of quality. This means that the consumer is forced to take an inferior apple while many high quality apples are ruined by scald and the diseases following in its wake.

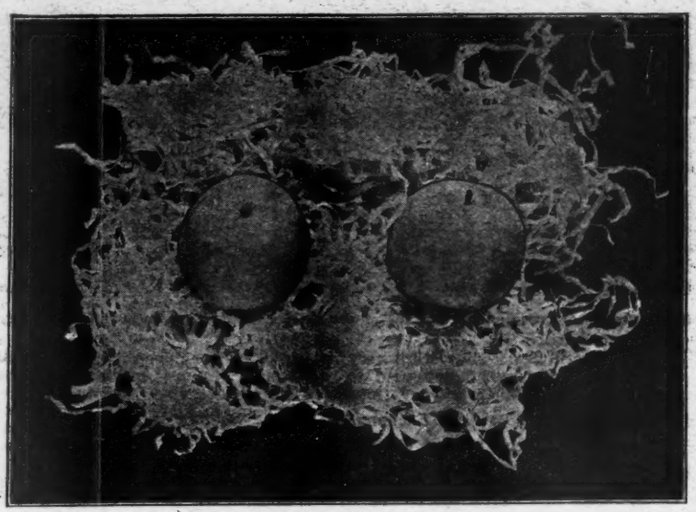
Dr. Charles Brooks of the United States Department of Agriculture has conducted investigations dealing with the cause and the control of apple scald and after many years of work has given us the cause of the disease and a dependable control.

Caused by Respiration Gases

Briefly, apple scald is caused by an accumulation of the gaseous by-products of respiration about the fruit. In tight packages in storage the effect is the "suffocation" and consequent killing of the epidermal cells of the apple. At storage temperatures, the dead cells seldom change their appearance, but when removed to warmer temperatures the dead tissue readily becomes brown and often sloughs off when the fruit is handled, permitting rots and molds to gain entrance into the tissue of the fruit and hasten its destruction.

The control of the disease involves the removal of these injurious gasses of respiration from the proximity of the fruit. Ventilation is the simplest method of accomplishing this, but ventilation of tight packages in a commercial storage is impractical. The next principle made use of was the power of oils and waxes to absorb gasses. As a direct result of investigations along this line the oiled wrapper has been developed.

Paper wraps impregnated with an odorless and tasteless mineral oil appeared on the market in 1920-21, and were tried out in the Pacific Northwest. In spite of the fact that some of the early wrappers did not contain sufficient oil to give absolute control, the results were so gratifying that the practice developed rapidly, as the cost of the oiled wraps exceeded the cost of the ordinary wraps by only two cents a box. The oiled wrapper was soon recognized by the eastern buyer, and in May, 1923, oil-wrapped western apples sold for a premium of $1 a box more on the New York auction, than similar apples packed in ordinary wraps. So great has the demand for oil-wrapped fruit become that it is reported that more than two-thirds of the 1924 crop of the Pacific Northwest was wrapped in oiled wrappers.



Shredded oiled paper mixed with barreled apples at the rate of one and one-half pounds per barrel, is good insurance against storage scald (Courtesy Purdue Exp. Sta.)

In other words, the oiled wraps are an established method of control of storage scald on boxed apples. Their value is recognized by both the grower and the buyer.

As yet the principle of oiled paper control has not been applied to barreled apples to a commercial extent. Experimental lots of wrapped apples in barrels have demonstrated the efficiency of the practice, but the labor and expense involved makes this method impractical for the quality of apples usually packed in barrels. Consequently the grower of barreled apples has paid little attention to the development of the oiled wrap.

It is admittedly impractical to wrap barreled apples, but a specially prepared shredded oiled paper is now available for use in barrels. Used at the rate of one and one-half pounds to the barrel, mixed thoroughly through the fruit so that all the apples are in contact with the oiled paper, this method of scald control gives very gratifying results.

Shredded oiled paper has been tried out under Indiana conditions for two years in both barrels and baskets and in both cold and common storage. While it has not always given 100 per cent control, it has reduced scald to such a small amount that it has ceased to be a factor worth considering. This protection is afforded at a very low cost per package.

To demonstrate this method of scald control to local grocers during the past season, Grimes apples packed

(*Concluded on page 25*)

Pecan Growing in Northern Georgia

By Robert Sparks Walker

THE STATE of Georgia has long been famous for her delicious peaches, but slowly and surely she is gaining as good a reputation for growing thin shell pecans. Most of her groves are situated in the lower half of the state. However, near the Tennessee border is a grove which is old enough and which has been producing long enough to make it as interesting as those in other parts of the state. It is the northernmost pecan grove in the state and contains about a thousand bearing trees.

The Beginning of the Orchard

Twenty-four years ago the owner of the farm, J. C. Hutchins, happened to note some literature on nut growing which interested him intensely, and he got in communication with a veteran pecan grower in Louisiana, from whom he secured further information and buds. Hutchins decided to bud his own trees, in which work he became eminently successful. Twenty-four years ago he started by budding one seedling. That tiny bud which he inserted has since grown into a tree which certainly must approach the ideal of its propagator, for it stands about 60 feet high, with a trunk of about 18 inches in diameter. That single tree was the beginning of the present grove, which is situated about a mile and a half from Chelsea, Ga., a small station on the Tennessee, Alabama and Georgia Railroad in northern Georgia.

Mr. Hutchins states that the first tree budded bore a few pecans the second year, and that there has never been a year since but what it has had pecans. Mr. Hutchins kept increasing his number of trees year by year until 15 years ago, and the youngest trees now measure about a foot in diameter at the base and are fully 35 feet high.

Varieties Planted

Fortunately for Mr. Hutchins, he budded the most of his seedlings to the Stuart variety, for this has since proved the best sort, not only for this locality but for many other sections in the South. It is a nut of good size, with a delicious flavor and thin shell and it fills out well. It is a dependable bearer and has won an enviable reputation.

Of the other varieties of pecan trees he has tested out, the Van Deman has proven a shy bearer, although it is a good pecan; Schley is also a shy bearer; Russell is a prolific bearer, but its nuts are too small for commercial purposes; the Columbians does not fill out; the Moneymaker has proved a good variety; the Jewett is only fair; while the Mobile and Georgia Giant have proven worthless with him.

The Lay of the Land

The old standard rule for judging suitable land for successful pecan growing was its ability to produce profitable crops of cotton. Most of the pecan trees in the Hutchins grove are grown in upland, of moderate altitude, on red mulatto land that slopes slightly toward the west. The grove envelops his home and barn, which furnishes them with handsome trees of beautiful shapes that make splendid shades in the summertime. On down the slope the grove extends, the trees standing about 35 feet by 40 feet apart.

Down in the bottomland, or overflow ground, where Le drained the red soil with carloads of drain pipe, he has a block of 16 acres of pecan trees, planted 18 years ago. The land is as level as a floor and is kept freshly plowed. The trees stand in perfect alignment and present one of the most beautiful sights to be found on any farm or orchard. Some of the trees are almost 50 feet high.

Mistakes in Planting

In the 16-acre bottomland, the pecan trees stand approximately 45 feet apart. After it was too late, Mr. Hutchins realized that he should have given his trees at least 60 feet of space between them, each way.

Insect Pests

When I asked Mr. Hutchins to name his most dreaded foes that he had to combat, he mentioned first the pecan twig girdler. This insect gnaws out a circular groove around the small twigs, which causes them to die and break off. Even though the twigs do not break, the depth of the wound is so great that the gap cannot be bridged by nature. He gathers up the dead twigs and burns them.

The pecan tree borer also gives him a little trouble. This insect enters the tree near the ground and unmercifully cuts out a chamber up through the tree. Sometimes Hutchins goes after him with a wire. The pecan weevils also do some injury just about blooming time. Mr. Hutchins describes this insect as working on young pecans much like the curculio works on young peaches at blossoming time.

Care of the Grove

When I visited Mr. Hutchins' pecan grove, the trees were in full bloom, and the soil had been freshly cultivated. Stable manure had been spread under a number of the trees. Mr. Hutchins stated that he was aware of the fact that he had neglected giving his trees the proper amount of fertilizers and that he knew that above everything else he ought to fertilize the trees heavily, for a pecan tree must be fed regularly if it is expected to bring the best returns from the investment.

Harvesting and Marketing

This is the most interesting phase of the industry; in fact, it is the climax of the story of any branch of agriculture or horticulture. I cannot imagine a more delightful treat than that of seeing this pecan grove at harvesting time in November when the fat plump nuts are ready to harvest. When the winds fail to shake the trees vigorously, the owner is forced to employ artificial means for jarring the nuts to the ground.

While the trees have never borne a full crop of pecans, yet they have never made a complete failure. In 1923 the crop was small, due to the rainy season at the time of blooming. Nut trees, like oaks, must depend entirely on the wind to carry the dusty pollen and distribute it over the pistillate flowers. If continued rains fall at blooming time, the moisture wets the pollen grains, making the transaction quite impossible, hence a light crop of nuts follows, or mayhap a complete failure. The wet weather in 1923 cut the crop in this grove to 2000 pounds. A few years ago, Mr. Hutchins states that he gathered more than 100 pounds of nuts from a single tree.

When the nuts are gathered, they are placed in bags that hold from 125 to 140 pounds each. If there should be any great number of small nuts, these are sacked by themselves.

For a number of years, Mr. Hutchins sent his pecan crop to Chattanooga, but since the National Pecan Growers' Exchange has been in operation, he has been selling the crop

(*Concluded on page 17*)

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By C. B. Sherman

United States Department of Agriculture

FOR NEARLY a century fruit and produce have been sold at auctions in the United States, but it is only during the past few years that the auction system of selling has become a vital part of our distribution machinery. The gross sales of fruits and vegetables through auctions during the last 10 years have shown an increase of approximately $122,000,000.

An intensive study of these auctions and their position in the channels of distribution has recently been completed by the Department of Agriculture with the co-operation of the 24 auction companies of the country. The auction occupies a place between the shippers and the retailers. On the one hand, it functions like the carlot wholesaler or the commission merchant, while on the other hand it operates much like the jobber and other less-than-carlot wholesalers. It serves both groups.

Large Tonnage Handled

Approximately 90,000 cars of domestic commodities were sold by auction companies during one recent year, according to the investigators. This tonnage constituted more than 10 per cent of the total commercial movement reported by the railroads to the Bureau of Agricultural Economics for that year. The growth of this business may be largely attributed to the patronage of large co-operative and private marketing exchanges. The auction company that handles the accounts of one or more of these organizations is usually assured a steady and adequate supply. Bananas have come so extensively under auction sale that recently the gross sales of bananas sold by auction in this country amounted to 56 per cent of the declared value of the total banana imports of the United States for that year.

Distribution of Sales

"The low point of auction sales is in January or February, when sales are largely confined to domesti citrus fruits, boxed apples and pears, foreign citrus and dried fruits," say the investigators. "Sales steadily increase during the next few months, reaching a small peak in June, when the early deciduous fruits appear in volume, then usually slack off noticeably in July. The volume climbs to the peak for the year in the fall with heavier shipments of citrus and deciduous fruits. After October the sales diminish rapidly during the next two months to the low point for the succeeding year.

"In the eastern auctions the volume of domestic citrus fruits sold is approximately one-third greater than the volume of deciduous fruits. In some auctions of the Middle West, this situation is reversed, two-thirds of them selling deciduous fruits almost exclusively. New Orleans sells more domestic vegetables at auction than any other market. Domestic and foreign vegetables are sold at auction in New York, with a perceptible increase in the volume of domestic vegetables offered in recent seasons.

"The desire of the trade for impartiality in the services rendered and the charges imposed is causing the gradual discontinuation of certain practices that at times have been a source of dissatisfaction," says the investigators' report. "In some cities these causes, together with a desire for participation in the profits earned by the auctions, have brought about reorganizations of existing companies or the founding of new companies. Auctions have become better established as permanent organizations in the last few years and greater uniformity in their methods and practices is apparent.

An every day scene in one of the New York auction rooms

Has Stabilizing Influence on Market

"Irrespective of the type of organization, any honest and equitably conducted agency that tends to bring the buying power of the market together and to stimulate active and unrestricted bidding would seem to exert a stabilizing influence in the market, and, therefore, in the last analysis, to be a benefit to both buyers and sellers. Auction sales are open to the public and anyone may buy. The selling is done in the open and the prices realized are published. This publicity tends to minimize such practices as rebates, secret agreements, private adjustments, and manipulation of accounts."

Many of the trade auctions have been reorganized since 1915 and the stock holdings have been more widely distributed among the buyers and receivers. In some instances these auctions are organized on a basis which may be considered co-operative, in a sense, for a discount is allowed to all stockholders, amounting to a fraction of one per cent of the gross value of their purchases or sales, payable at stated intervals.

Products from Co-operatives and Auction Receivers

Goods handled by the auctions are usually received from the salaried representatives of large shipping organizations or from auction receivers and are sold to the buyers of less-than-carload units for further wholesale distribution. In some cases commodities sold by the auction companies are received by them direct from the shippers of country assemblers. Considerable quantities of goods are auctioned direct to the retail distributors without going through the hands of the jobbers or less-than-carlot wholesalers.

In the past a widespread misunderstanding of the auction method of sell-

(Concluded on page 34)

Vermont Society Holds Orchard Meet

By M. B. Cummings

University of Vermont

THE ANNUAL orchard meeting of the Vermont State Horticultural Society was held at the orchards of John McL. Stevens at Orwell, Vt., September 8, 1925. A large number of people gathered from all sections of the state and from adjoining states, especially New York and Massachusetts. Mr. Stevens is an experienced grower of fine quality Northern Spy and McIntosh Red apples. He is one of the few men in the state who succeeds in getting regular annual crops of fine quality fruit. When asked why and how he did it, he said it was partly due to his preferred location on Lake Champlain, the type of soil, and general good care throughout the life of his orchard. Mr. Stevens began 30 years ago, and he and the orchards are still in their prime. Mr. Stevens believes that the Northern Spy and McIntosh are the two preferred varieties for Vermont. He favors alfalfa sod and grass mulch in his orchard to the exclusion of commercial fertilizers; he prefers liquid spray to dust applications; and he is an advocate of the barrel as a commercial package for New England growers.

Considerably over a hundred people had lunch at noon in the new modern packing house at the Stevens' place, and listened to a program following the lunch, which proved interesting to all present.

Interesting Points Brought Out

John McL. Stevens was the first speaker. He said that the common mistake is failure to thin the fruit. He advised removal of about one-third of the fruit before midsummer. Another common mistake is setting the trees too far apart. He advocated setting the permanent trees 30 feet each way and interplanting with Spys. How the Nashoba Fruit Growers' Association of western Massachusetts began and how it operates were ably explained by E. A. Hackett of Bolton, Mass., who is a member of that organization and a practical fruit grower. Mr. Hackett said that during a crisis in prices a few years ago, the present members of his organization agreed to withhold their fruit from market and establish a fair and standard price, which they did, and they secured a desired figure. Mr. Hackett did not advocate organizations in other parts of New England, but he did show how successfully one had operated and thought it might be worth consideration whenever an emergency arose, as was the case in his district. The speaker also told of the new Red Delicious apple recently celebrated in Moorestown, Pa., and called attention to the New England Fruit Show, asking Vermonters to send exhibits and attend the show for the benefit they would get from it.

Spraying and Dusting Discussed

The other feature of the program was a question box conducted by Prof. M. B. Cummings of the University of Vermont and Secretary of the Vermont society. Among the leading questions were those in regard to dust applications as substitutes or supplements of liquid sprays. Julian Dimock of East Corinth, a successful grower of apples and potatoes, has had several years of experience with the dust which he began using because of lack of water supply on his hillside orchards. Mr. Dimock said his dusting began at three a. m., because he had to dust while the air was quiet and the dew was on. Mr. Dimock believes the dust is effective under his conditions and is satisfied to continue it. E. H. West of Dorset has also had experience with the dust in co-operation with the liquid spray and his results and impressions corroborated those of Mr. Dimock. Mr. West found dusting very satisfactory for hillside orchards and said it should be used in connection with liquid applications. Dust costs less per application but more repeats are necessary, so the cost is about the same as for spraying. However, both men agreed that liquid applications are effective where sprayers can be used to advantage without excessive haulage. A unique point about dusting was reported by R. R. McRae of Castleton, who said he had used an electric light on the front of his tractor—which hauled the duster—as a means of enabling better work, because, while it is still dark in the early morning and more so by virtue of a cloud of dust, one needs artificial light.

How to Prevent Crotches

How to prune the Northern Spy so as to avoid bad forks and crotches and breaking down was discussed in considerable detail by many people. Mr. Stevens offered perhaps the best suggestions, namely, that the trees should be headed high and the scaffold branches formed rather late. T. A. Bullard of Schuylerville, N. Y., also advocated high heads and many scaffolds rather than few. Another speaker suggested the nailing of branches to the main limb where weak crotches occurred, and George H. Steward of Rutland suggested the use of screw eyes and wire braces as a means of lessening the leverage and hindering the widening of forks.

Prof. Cummings suggested that by eliminating bad forks in the small trees, strong scaffolds can usually be secured. The modified leader is helpful with Spy trees which show a tendency toward weak crotches. Watch for bad forks the first year and continue the vigilance.

Protection from mice and borers is a universal problem. The coarse wire screens often used are effective against rodents and mechanical injuries, but do not always exclude beetles that lay eggs for borers, for the mesh is too coarse. Window screening is more certain to exclude borers. John Stevens at Orwell, uses an inverted bottle so placed as to exclude snow and rain, but with large necks permitting mice to get access to the poison bait inside the bottle. It seemed to work well.

"Should small trees be sprayed?" was a question answered in the affirmative because of danger from worms or grasshoppers which defoliate the trees, or lice which suck out juices and devitalize the trees. But the number of applications is to be determined by judgment and local conditions. At least one standard application seems imperative.

Cull Nursery Stock

"Does it pay to cull nursery stock as it is planted?" was a question presented by a member and answered by Prof. M. B. Cummings to the effect that in Maine it had been found that nursery trees varied a good deal in size and value, and that the smallest

(Concluded on page 34)

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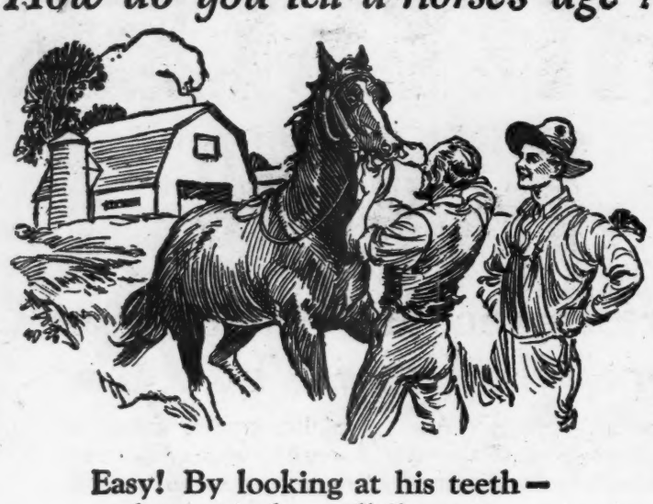

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Fall Care of the Spraying Outfit

By C. L. Burkholder

Purdue University

A SOMEWHAT new departure in the way of fall care of the spray outfit is to remove the engine and pump from the trucks and send them to the factory for complete overhauling. This must be done in the fall or early winter, as the spray outfit manufacturers are too busy to give a large amount of this service in the spring months.

Frank Beach of the Ohio Horticultural Department says that he returns both of his spray outfits to the factory every fall. The freight charges average little more than $4 each way, which is money well spent when you consider the high class repairmen and the natural interest the company has in helping their machines make a good showing. Parts showing any dangerous amount of wear are replaced in both the engine and pump. Such repairs are sure to be needed some time the following season, and how much better and cheaper it is to have the "misery" over with at some other time than during the midst of the spraying season. Certainly no one knows better how to put an outfit in first-class running shape for another year than the manufacturer of that outfit. Mr. Beach has had wonderful service from the outfits he is using at his Gallipolis farm, and he attributes much of it to yearly factory overhauling and timely replacements.

If the spraying season is over and the outfit is to stand over winter, it is an excellent plan to pump auto crank case oil into the outfit until it throws a quart or so out of the hose connections. All drain plugs should then be removed and the engine run a minute or two longer to make sure that no pockets of water remain anywhere in the pump or pipes.

It is an excellent plan to always remove the drain plugs during part of the operation of flushing out the pump with clean water after each day's spraying. This gives a much better opportunity for sludge and grit to drain out of the bottom of the pump. It is not an uncommon experience to find the drain plugs and pipes completely stopped up after a few weeks of summer work and flushing with drain plugs all in.

A still better method than merely running oil in the pump before letting it stand over winter is to remove the pump from the frame and take out all the pipe lines to and from the pump. They are invariably coated with a slimy deposit which cannot be flushed out with water or oil. This is not a difficult task and will bring the outfit through the winter in much better condition and will avoid much "flaking" of the inside of the pipes the following year.

There is usually an accumulation of grit in the pressure regulator and the regulator should be removed, cleaned and oiled. The same thing happens under the pressure chamber. After the pressure chamber has been removed, it is a good plan to wash it out with gasoline and then oil it.

Remove all of the plungers and clean with gasoline. Oil the cup leathers and put back in the plunger castings. Pack hard oil over the top of the plungers to the top of the pin which fastens the plunger rod to the plunger. The main reasons why the plunger pins wear loose is because of the accumulation of dirt and poor lubrication. Squirting soft oil down on the pin is of little use as there is usually enough water or spray material inside the plunger casting to float the oil. As soon as the plunger pins wear loose the stroke of the plunger is reduced just that much, which of course cuts down on the delivery of the pump.

The spray hose should be thoroughly drained and is best stored in a place where it will not freeze. Shut-offs and nozzles can be cleaned and dropped in a can of oil for the winter. Extra cup leathers should be well oiled and stored in a tight box, otherwise they will be so dry and hard by spring that it will be difficult to get them in good working condition when they are needed for replacements.

New Horticultural Building for Indiana

A NEW horticultural building is now under construction at Purdue (Indiana) University. The building will cost approximately $225,000 and will contain about 25,000 square feet of floor space. It is expected to be ready for occupancy some time during the coming school year.

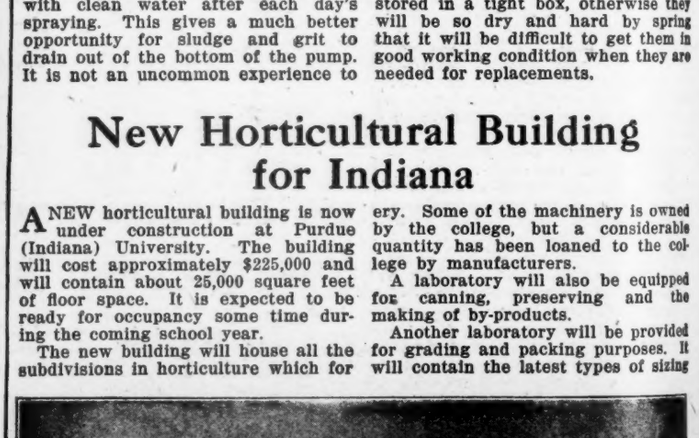
The new building will house all the subdivisions in horticulture which for several years have been distributed in a number of buildings, according to Prof. Laurenz Greene, head of the department.

The building will be equipped with a modern cold storage plant for studying storage problems and for keeping fruit for class purposes. The building will also contain a spraying machine laboratory in which will be kept a large amount of spraying machinery. Some of the machinery is owned by the college, but a considerable quantity has been loaned to the college by manufacturers.

A laboratory will also be equipped for canning, preserving and the making of by-products.

Another laboratory will be provided for grading and packing purposes. It will contain the latest types of sizing machines and other equipment used in preparing fruits for market.

The building promises to become a fitting addition to the splendid facilities which the Indiana Experiment Station has provided in connection with its fruit and vegetable activities. The building will make it possible to unify the various activities of the college and station relating to horticulture.



Architect's drawing of new horticultural building at Purdue (Indiana) University

Propagation of Fruit Plants

(Continued from page 3)

parent plant. A great many plants will under proper conditions strike root from cuttings. Some plants, like the begonia, will grow a complete new plant from a leaf cutting. Others, like roses, will strike root nicely from green wood cuttings, and still others, including most of the fruit plants, are better grown from matured hardwood cuttings. The cuttings themselves are generally made from wood of one season's growth and are made up in convenient lengths, usually from eight to 14 inches in size. Grape cuttings are generally made to include three joints or buds, while currants and gooseberries are cut about eight or nine inches long. In preparing cuttings, the lower cut is usually made immediately beneath a bud and the upper cut from a half to three-fourths of an inch above the upper bud. They are generally made in the late fall or early winter from well-matured one-year growth, tied in bundles of 50 and packed away in a cool, moist cellar in damp sand or sawdust. A callus will usually form over the base of the cutting through this period of storage. Prior to planting in the nursery row, the cuttings are sometimes buried bottom upwards in a cold frame, or in some way handled to allow the butts to be warmed up and the tips kept cool. This begins to stimulate root growth while retarding any growth of the buds. As soon as the ground is in good condition the cuttings are lined out in nursery rows four feet apart, with the cuttings from three to five inches apart in the row. The cuttings are planted in a trench, care being taken to thoroughly pack the soil around the base of the cutting and to plant them deep enough to cover all but the upper bud.

Hardwood cuttings are made in three different forms, the common form being known as a straight cutting. A heel cutting is one formed from the base of a branch in which a portion of a union is cut away from a parent stem and left attached to the cutting. A mallet cutting is somewhat similar to a heel cutting except that a short segment of a branch is removed, leaving a mallet-shaped head at the base of the cutting. Such cuttings sometimes develop stronger root systems than is the case in the straight type. A still further modification of hardwood cuttings is occasionally practiced by grape growers who remove only a single eye or bud and plant this short cutting in sand in the greenhouse where it receives bottom heat. This single eye cutting is utilized only when propagating material is scarce.

A method of propagation known as division is an intermediate between layerage and cuttage and involves the digging up of the parent plant and dividing the rooted crown into several parts. This is rarely used in fruit propagation, although it is possible to separate old gooseberry and currant clumps into a number of divisions. It is more commonly used in the propagation of lowbush blueberries where a number of small rooted sprouts or branches may be separated from the parent plant and lined out in a nursery row for further development.

Graftage—By far the most interesting and also the most complex form of asexual propagation is that known as graftage. This involves the transfer of a bud or section of shoot from one plant to another, known as a stock plant, in which the bud or scion transferred becomes duly incorporated. Graftage may be practiced on practically any kind of a plant which has a definite bark and wood formation. Plants with the type of growth of the palm and corn are extremely difficult, if not impossible, to graft because of the lack of a definite growing region. The ordinary tree with wood and bark has a definite region from which new growth takes place. This is known as a cambium layer and is found in that soft, sappy layer which lies between the bark and the wood. The cambium forms new wood on the inside and new bark on the outside and

(Continued on page 16)

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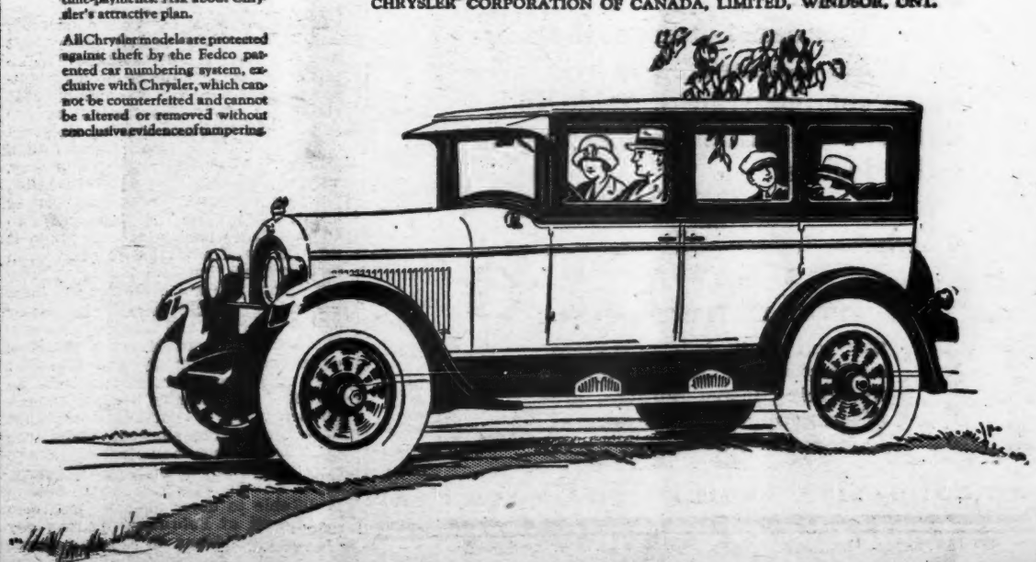

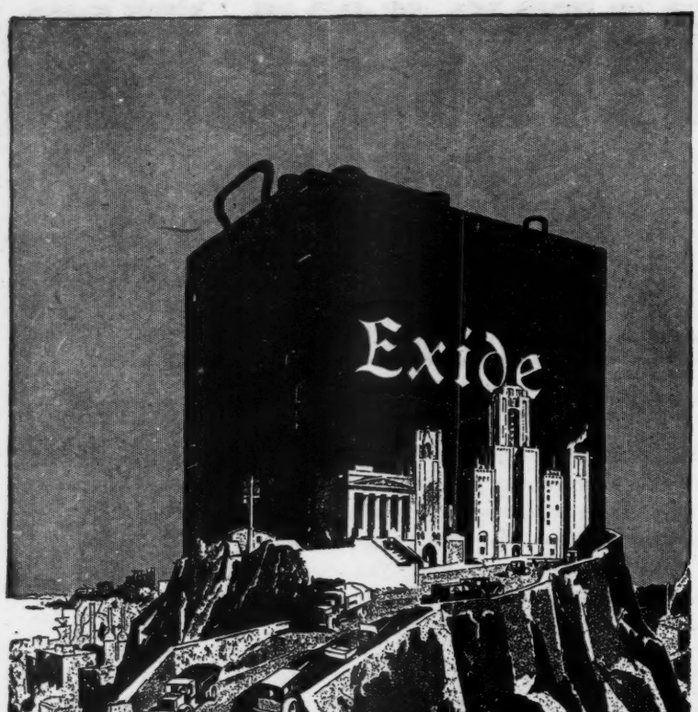

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Fruit Growing in the Southeast

By O. F. E. Winberg

Satsuma on the Gulf Coast

THE SATSUMA orange on the Gulf Coast, established commercially in 1909, had at the end of the year 1923, reached an area of 18,000 acres, distributed over west Florida, south Alabama, south Mississippi and southeastern Louisiana, with the principal plantings in Alabama.

It was first introduced into northern markets in 1915. It was then totally unknown. Year by year this fruit has attracted considerable attention for its unusual good quality. The highest mark of production was that in 1923, when it reached 700 carloads. In January, 1924, through the extremely low temperature, the like of which has not occurred in the Gulf Coast section for 25 years, the acreage was reduced from 18,000 acres to 10,000 acres.

During the winter and spring of 1924 there was general discouragement, many growers believing that the industry was lost. However, rehabilitation work began throughout the citrus belt in the summer of 1924. The result was very gratifying. The normal winter of 1925 gave the growers encouragement and the groves were given the very best attention possible during the early spring, which has continued throughout the summer. Every orchard that has received normal attention during the season is now in a high state of bearing. The production this year will be approximately half of the production prior to the freeze of 1924.

The Satsuma orange (which is of the kid glove type) is becoming more and more popular because of its unusual quality. The present acreage, therefore, will not be sufficient, even when it gets into normal bearing, to meet the demand. This variety of citrus fruit ripens earlier than any other variety, beginning the middle of October, at which time the supply from both California and Florida is comparatively low. Therefore, the Satsuma fills a place in the citrus market that insures a reasonably good return to the grower. With a system of proper distribution, the normal production of the present acreage would hardly fill the demand of the consuming public for more than two or three weeks. It is, therefore, quite evident that the growers whose orchards suffered from the cold in 1924, should proceed to replant their orchards during the coming season.

When the planting of Satsumas was first started on a commercial scale in 1909, the tendency was to plant from 15 to 20 feet apart. We now find that trees 15 feet apart at the age of 12 to 14 years do not permit cultivation. Our experience is that without cultivation we cannot expect a good crop. Again, close planting will not permit proper spraying. Thus orchard sanitation is not kept up in closely planted orchards to a reasonably safe standard. Our observations in the years gone by show that no Satsuma orchard should be planted closer than 25 feet between the trees each way. This will permit proper cultivation, planting of cover crops and proper orchard sanitation for many years to come. There may be a time when it may be found advisable to plant even farther apart, but indications at present do not warrant a greater distance.

Planting should begin the latter part of February and continue throughout the month of March. Weather conditions in January and the first part of February are not entirely favorable. There may be low enough temperatures to damage trees that have been transplanted, while the trees remaining undisturbed in the nursery are not damaged. Therefore, to be on the safe side, it is always preferable to defer planting until the latter part of February. During our 20 years' residence on the Gulf Coast, we have not experienced any low temperature sufficient to do injury after February 20.

Since the beginning of commercial Satsuma planting, we believe that each grower has gained experience in the handling of his Satsuma orchard which, in the future, will insure better production per acre and better quality, both of which are essential for profitable fruit growing.

Intensive Methods in Fruit Production

IN MANY sections, and particularly so in the South, the marketing of fruits and vegetables has held the attention of the producer for several years. We admit the importance of working out marketing problems, but still we believe that the question of economical production must be given serious consideration.

We do not believe that we should look entirely to co-operative marketing as being something which will solve all our problems. Rather, we should center our attention in the first place upon production. We should change from too extensive to more intensive operations. Each grower should carefully study the conditions under which he operates, with the object in view of producing the maximum per acre coupled with good quality. Such a study, I am sure, would convince most growers that by the application of scientific methods fruit can be produced at a considerably lower price than under too extensive operations.

If, by intensive methods, production can be increased 50 per cent per acre, or, still better, 100 per cent, it is quite evident that the compensation to the producer on an acre unit will be greatly increased. In the production of Satsuma oranges on the Gulf Coast, we have given serious consideration to this question in recent years, and the writer will deal with this problem specifically in future articles and present statistics to show the difference betwen intensive operations as compared with too extensive operations or indifferent methods.

Small Fruit Possibilities on the Gulf Coast

FOR SEVERAL years past amateur fruit growers and farmers in the Gulf Coast section have planted grapes of various varieties for home consumption.

Heavy production of individual plants of such varieties as Niagara, Concord and Delaware, and such of the Muscadine type as the James, have shown that there might be a possibility of growing grapes on a commercial scale, particularly in west Florida, the Gulf Coast region of Alabama and south Mississippi. However, no attempt has been made in this direction until the past two years, when planting of the Carman variety has been made in west Florida on a commercial scale, which gives promise of excellent results.

However, we do not believe that the Carman variety will be the one that will attract most attention in the future, but rather we believe that the Armalaga and Ellen Scott will be the two outstanding varieties. These two have been tested out near Picayune, Miss., and everything indicates that the soil and climate in the coastal region are splendidly adapted for the growing of these grapes.

These varieties ripen at a time when the supply of grapes is very limited. Thus, it seems that a good demand at a reasonable profit to the producer could be expected. Both of these varieties ripen uniformly and indications are that they are good shippers. Their eating qualities are par excellence. Both of these varieties will be

tried out in south Alabama during the coming season, and if results are as good here as in Mississippi, we believe that in a few years the growing of these varieties of grapes will be a new fruit industry in the Gulf Coast section.

Another small fruit that gives promise of becoming an industry of importance is the Young Dewberry, introduced into south Alabama through the efforts of Dr. George M. Darrow of the United States Department of Agriculture and George E. Murrell, Horticulturist of the Southern Railway.

The growing of this fruit on a small scale during the past seven years, by several parties in the Fairhope section of Baldwin county, Alabama, indicates that this particular berry is well adapted for this section of the Gulf Coast. Its eating quality is all that can be desired. It is a heavy bearer, it is of good size, and while it has not been tried out on a large scale to test its shipping qualities, we believe that under proper handling it will stand shipping well.

During the coming winter a large enough acreage will be planted in Baldwin county, Alabama, to insure carlot shipments of this berry.

Marketing and Marketing Organizations

FOR THE last several years, we have heard co-operative marketing spoken of by farmers, business men, bankers and professional men. It has become a sort of hobby to talk marketing. We have come in contact with people who have retired from active business or profession, and they occupy their idle time by talking co-operative marketing.

We have met hundreds and hundreds of people willing to proceed with organizing a co-operative organization for marketing, not so much to help the farmers as to help themselves. The farmers and fruit growers have usually fallen in line; organizations have been formed; everything has been lovely, but these professional organizers of co-operative organizations (and in some instances idealists have tackled the same problem) have entirely forgotten to provide a sound foundation for a co-operative structure. In many instances it has been a house built on sand.

The chief trouble has been the failure to count the cost, and thus the overhead expenses have gone up to such an abnormal figure that the net result to producers has been so low that comparisons have not shown up creditably to organized co-operative marketing. Thus, one organization after another has come and gone.

We believe that co-operative marketing is needed. It is and should be an orderly process of distribution by the producers, but unless this orderly process of distribution can be carried on co-operatively as efficiently and economically as any other similar business managed by an individual or corporation, it will not survive; it will not be lasting.

Sound business principles, honest, efficient men in every branch of work, and wide-awake directors who are actually directing, are necessary essentials in successful co-operative marketing. Officers and directors of co-operative organizations, besides being efficient, capable business men, must recognize their responsibility to the people they serve and be imbued with the determination to succeed. No business enterprise will ever succeed without all of these essentials.

North Dakota State Horticultural Society

THE NORTH Dakota State Horticultural Society, now three years old, has doubled its membership the past year and has members in every county of the state. The annual convention is held in the early fall instead of during the winter.

During the convention held a short time ago, a tour was made to the northern Great Plains station at Mandan. Hundreds of varieties of tree and small fruits were observed. While many of these are worthy, a few stand out above the rest. For instance, the Waneta and Redwing plums were superior to all others. This work, due largely to the splendid introduction service and breeding experiments of Prof. N. E. Hansen, emphasizes the need of careful selection of varieties for northern conditions.

A visit was also made to the O. H. Will Nursery and Seed Company. A program of addresses and discussions was carried out. It was voted to spend the surplus on hand in printing a report so as to show the legislature the need of an appropriation. At present, the only income is from the dollar membership fee. A movement was passed requesting Congress to establish a national plant registration service so that the originator of a new variety will be protected in the same way that the patent laws protect inventors.

Officers were elected as follows: President, H. C. Cooper; Vice-Presidents, F. E. Stefonowicz, E. C. Hilborn and Mrs. Fannie Heath; Secretary, A. F. Yaeger; Treasurer, R. H. Nelson. The 1926 meeting will be held at Fargo.

National Apple Week

THE NATIONAL Apple Week Association has designated the week of October 31 to November 6 as Apple Week. National Apple Week is the outgrowth of an idea first proposed by James Handly of Quincy, Ill. The idea has been promoted for many years by the International Apple Shippers' Association and other trade organizations. Formerly a day only was devoted for the purpose. During the past year a week has been set aside to promote greater apple consumption, and a special organization has been formed to back the movement. F. H. Simpson and R. G. Phillips are president and secretary, respectively.

All dealers, handlers and growers are being urged to emphasize the consumption of more apples during National Apple Week. This plan should be vigorously supported by apple growers throughout the country, for the consumption of more apples will strengthen the demand and improve prices.

EXCEPTIONAL RIDING COMFORT

Travel all day, and the next, and the next. Then you will begin to understand what Dodge Brothers, Inc. have accomplished with their long underslung spring equipment, balloon tires and low-swung body lines.

In touring, the master test of riding ease, Dodge Brothers Motor Car now acquits itself with a distinction you have learned to associate only with vehicles of the largest and most expensive type.

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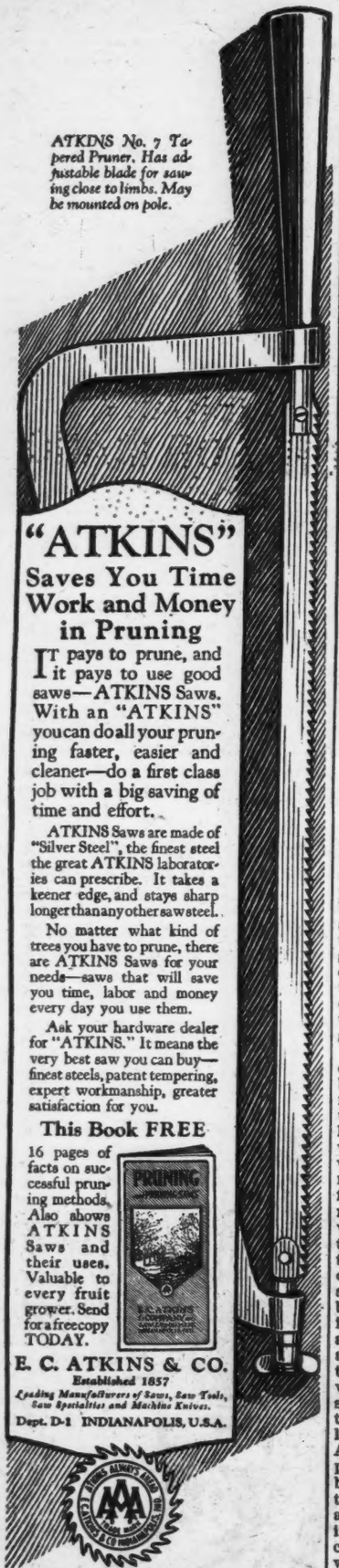

ATKINS No. 7 Tapered Pruner. Has adjustable blade for sawing close to limbs. May be mounted on pole.

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IT pays to prune, and it pays to use good saws—ATKINS Saws. With an "ATKINS" you can do all your pruning faster, easier and cleaner—do a first class job with a big saving of time and effort.

ATKINS Saws are made of "Silver Steel", the finest steel the great ATKINS laboratories can prescribe. It takes a keener edge, and stays sharp longer than any other saw steel.

No matter what kind of trees you have to prune, there are ATKINS Saws for your needs—saws that will save you time, labor and money every day you use them.

Ask your hardware dealer for "ATKINS." It means the very best saw you can buy—finest steels, patent tempering, expert workmanship, greater satisfaction for you.

This Book FREE

16 pages of facts on successful pruning methods. Also shows ATKINS Saws and their uses. Valuable to every fruit grower. Send for a free copy TODAY.

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ATKINS SILVER STEEL SAWS

Propagation of Fruit Plants

(Continued from page 13)

is the only place in the tree where new growth takes place.

This knowledge of tree growth gives us an insight into the practice of grafting. If the scion is cut and placed in contact with a stock in such a manner that the cambium layers of the two are in contact, and the union covered with some material to prevent drying out, the live growing tissue of stock and scion will unite by means of the new cells produced through the cambium of each.

Grafting is for the most part done in the early spring before growth begins. Scions are generally cut during the early part of the winter, using one-year-old shoots of vigorous growth. These are stored in a cool cellar in some damp material that will prevent drying out, but which at the same time is not so wet as to cause water-soaking. At this point it may be well to say parenthetically, that the grafting may be performed successfully at almost any time during the summer, even using scions that are in full leaf and growing vigorously. The layman, however, and most other propagators will use dormant wood for scions and will do their grafting before the buds on the stock plant have made much growth.

Whip graft used in making root grafts

1, Beveled cuts on stock and scion; 2, tongues cut in stock and scion; 3 and 4, scion properly placed in stock; 5, completed graft held together with waxed string.

Before describing a few of the most common methods of graftage, it would be well to mention briefly some of the materials and tools that are to be used. The only tool which is absolutely essential is a sharp knife, and when we say sharp, we mean just what we say, for only with a sharp instrument can a smooth cut and a well fitting scion be made. An essential material is some form of wax with which to cover the cut surfaces and the graft union to exclude the air and to prevent drying of the cut parts. A common form of grafting wax is made as follows: four parts resin, two parts beeswax, and one part tallow. These ingredients are thoroughly melted over a slow fire, are cooled by pouring into a tub of cold water and then, with the hands well greased, pulled and worked like taffy until it takes on a smooth, light brown appearance. It is then molded into convenient sized lumps or balls and laid away for use. At grafting time this wax may be applied either as melted wax with a brush or it may be warmed sufficiently to work easily when, with the hands again well greased, it is pulled out into thin ribbons and applied over the cut surfaces. The brush and melted wax is by far the most convenient and economical method. Waxed string is another article that will be needed, especially in the making of root grafts. This can be made by merely dipping a ball of No. 18 cotton string in melted grafting wax until it is thoroughly saturated. One should run a willow shoot or piece of wire through the center of the ball for convenience in handling. As the ball is removed from the wax, it should be rotated in the air a few moments until the wax is set to prevent the wax from draining downward and hardening in a lump on the lower side of the ball.

Within recent years it has been found that an ordinary commercial grade of paraffin or parowax as commonly used by the housewife in sealing jelly glasses may also be used successfully in grafting. It should be melted and applied with a brush in a similar way to the melted grafting wax.

Whip Graft—A common method of grafting, useful for topworking small trees and for making the nurseryman's rootgraft, is known as whip grafting. In making a whip graft, the stock should be cut off just above a smooth spot free from knots. A smooth beveled cut, from an inch to an inch and a half long, should be made at the top of the stock. If the stock is small, this cut may extend clear across, but when a branch three-eighths of an inch or more in diameter is to be worked, it is better to make the beveled cut along one side of the stock and not reaching quite to the pith. Next, a tongue should be cut beginning about one-third of the distance from the tip of the bevel, and cutting downward about one-third of the length of the original beveled cut. Avoid starting the cut through the pith. To secure a smooth surface on the inside of the tongue, it should be cut and not split. The scion may now be similarly prepared, beginning the first beveled cut opposite the base of a bud and making sure that the cut is approximately the same length as in the stock. After the tongue is cut in the scion, the two pieces are fitted firmly together, care being taken that the inner bark along one side is in contact. The scion should be cut about three to four inches long and should carry three or four buds. The two pieces are then bound together with ordinary cotton or waxed string and thoroughly covered with wax about the union and on the top of the scion. After growth is well started, the string binding the two parts together should be slit along the back of the graft to prevent girdling.

In the propagation of nursery trees, seedling roots are secured and cut up into about four-inch lengths. Each piece of the root is then used as a stock and a scion about six inches long is whip-grafted to the upper end of the root. The two are then bound together with waxed string or waxed strips of cloth. Waxing is unnecessary since the grafts will not dry out when packed in damp material and are later planted in moist ground. The whip grafts are then tied up in bundles and packed away in a cool cellar in damp sand or sawdust. The grafts should be made during January or February, and by the time they are taken out of the cellar for planting in the nursery, it will be found that the union and the cut surfaces at the bottom of the root will be nicely

(Concluded on page 25)

10 reasons why

You Should Own One of the

DEPENDABLE HARDIE SPRAYERS

1. PUMP ELIMINATES 90 PER CENT WEAR. No crossheads. All wear comes on two soft packings—replaceable in two minutes.
2. CHAIN DRIVE — Flexible, positive and durable.
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9. SPEEDY SERVICE—Dealers in every fruit section, carrying full stock of parts. "Service seldom needed, but service when you do need it."
10. COMPLETE LINE OF POWER and HAND SPRAYERS. There's a size and type to fit your needs.

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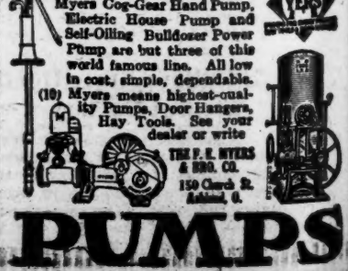

PUMPS

Notes From Northern Nut Growers' Meeting

THE SIXTEENTH annual meeting of the Northern Nut Growers' Association was held in St. Louis, September 22-24. According to its constitution, the object of the association is to promote interest in the culture of nut bearing plants. Widespread interest was evident through a good attendance of members from many places, including Ontario, Pennsylvania, Vermont and Minnesota, as well as other states nearer at hand.

The list of speakers was headed by Hon. R. W. Dunlap, Assistant Secretary of Agriculture. Other speakers and their subjects included "The Environmental Requirements of Nut Trees," by Dr. George Moore, Director, Missouri Botanic Gardens; "The Status of the Chestnut" by C. A. Reed, Nut Culturist, United States Department of Agriculture; "The Roadside Use of Nut Trees," by Hon. W. S. Linton, Saginaw, Mich.; "Tree Crops in Relation to Tomorrow's Food Supply," by Dr. Robert T. Morris, New York City; and "The Use of Nuts as Food," by Dr. J. H. Kellogg, Battle Creek, Mich.

One day's sessions were devoted to a discussion of the possibilities for both the amateur and the commercial grower in the more general planting of nut trees. The discussion was led by Prof. James Neilson, Ontario; S. W. Snyder, Center Point, Iowa; Thos. P. Littlepage, Washington, D. C.; Prof. T. J. Talbert of Missouri; Zenas H. Ellis of Vermont; A. S. Colby of Illinois, and others.

New methods of propagation which have recently come into use by which this work can be made much easier were discussed by Dr. W. C. Deming of Connecticut and Dr. Robert T. Morris of New York City. Dr. Morris has somewhat modified the earlier method first used by the late E. A. Riehl of Alton, Ill.

Some time was also spent in a discussion of the more serious insect enemies and fungous diseases of nut trees, led by W. P. Flint and H. W. Anderson of Urbana, Ill. A new method of tree surgery was discussed by F. A. Bartlett of Connecticut.

An important feature of the meeting included an extensive exhibit of nut cracking and grading machinery, propagating tools and one of the largest collections of edible nuts ever gotten together for exhibit.

The last day of the meeting was devoted to a trip to the home of the late E. A. Riehl of Alton. Here, under the hospitable guidance of the Misses Riehl, the visitors were shown chestnut orchards bearing very profitable crops on land not suited for ordinary agricultural purposes.

Officers elected for the ensuing year include Dr. W. C. Deming, Hartford, Conn., President; S. W. Snyder, Center Point, Iowa, Vice-President; Dr. A. S. Colby, Urbana, Ill., Secretary; and H. J. Hilliard, Sound View, Conn., Treasurer.—*A. S. Colby.*

Pecan Growing in Northern Georgia

(*Continued from page 8*)

through this organization. In 1922 and 1923 the crop netted around 42½ cents per pound.

Conclusion

One of the most beautiful sights that I have seen is Mr. Hutchins' pecan grove. Fourteen years ago when I visited the grove, the trees were large for their ages, but I have never seen trees of any kind make such remarkable growths as they have in late years. When I visited the grove last spring, the trees were in full foliage, and thousands of catkins (male flowers) were dangling from the crowns of the thrifty trees, but the pollen was not quite ripe. The vista under the stately trees is sufficient to thrill anyone who loves trees. The bark of the trees looked to be more healthy than some I have examined in pecan groves in south Georgia and Florida.

As I gazed with admiration at the beautiful grove, I just wondered if Mr. Hutchins derived as much pleasure from seeing it as I did, and so I said:

"Mr. Hutchins, I know I would never get tired of looking at this pecan grove, which I regard as the most beautiful tree creation I have seen in years, but I suppose, since you have been accustomed to seeing it daily from bud-hood, you grow tired of seeing it so often."

"You are badly mistaken," he said, "for I never tire of keeping my eyes on it, and I would rather have it than anything else about the place." That statement meant something, for Mr. Hutchins' farm consists of more than 400 acres of good land.

Why We Eat More Cranberries

(*Continued from page 4*)

sharp advance made early in December caused most of the wholesalers to increase their selling price to retail dealers and the retailers to make a corresponding advance to consumers. This so greatly retarded the demand in the average community that the dealers became discouraged and many of them discontinued handling cranberries for the balance of the season. Such a situation we had greatly feared and because of that the exchange refrained from advancing its price until its sales had closely approached its estimated shipments. Our members co-operated nicely by shipping as rapidly as they could pack, but the demand during the first part of December far exceeded their ability to pack and ship, hence the quotable market went beyond our control."

It is realized that complete price control is not only impracticable in the long run, but bad policy as well. As to fixing an unreasonably high price Mr. Chaney says, "I am positively convinced that the greatest, most common, and most fatal errors committed by marketing organizations and shippers, are made in establishing their starting or opening price."

Local Control

The machinery of the association is simple. The three state branches look after purely local questions of handling, grading, loading, and the like. The central exchange is, mainly a sales agency. Two per cent of the sales f. o. b. shipping station is deducted to defray the expenses of the local and five per cent of the same for the central exchange. If at the close of the season there is a surplus, it is returned to the members pro rata.

So, in the machinery of the organization two other principles are illustrated, seemingly contradictory but in effect comprising the elements of strength. For the sales end of the organization, *it pays to centralize.* For the management of the sectional affairs on the production end, *it pays to localize.* Merge the two ideas and you have the ground-work of an efficient body—a strong central sales agency based upon strong locals.

The American Cranberry Exchange has no contracts with the growers; they aren't needed.

Prices $70 *to* $350 Lower on Still Better Motor Cars

Touring Car	**$1025**	(Old Price	$1095)
Coach	**1095**	(Old Price	1215)
Landau Coupe	**1125**	(Old Price	1295)
Sedan	**1195**	(Old Price	1545)
Landau Sedan	**1295**	(Old Price	1645)

ALL PRICES AT FACTORY

Oakland has added more than 100 improvements to cars that were already unmatched in performance, appearance and value—then subtracted $70 to $350 from Oakland prices, bringing these brilliant and beautiful new Oakland Sixes down to the price-level of Fours.

Think of it, a *Six*—with Four-Wheel Brakes, Air Cleaner and Oil Filter as *standard* equipment; a *Six*—with low-swung beaded Fisher Body in enduring Duco; a *Six*—with the Harmonic Balancer, an exclusive feature rendering Oakland positively unmatched in freedom from vibration; a *Six*—far in advance in power, acceleration, speed, endurance and economy. And this *Six* selling for *hundreds of dollars less* than cars anywhere near it in quality.

Above are the impressively lower prices. Read them—then visit your Oakland Dealer and see and drive this new Oakland—prove to your own satisfaction that it is no longer necessary to pay high prices for a thoroughly high-grade automobile.

OAKLAND MOTOR CAR COMPANY
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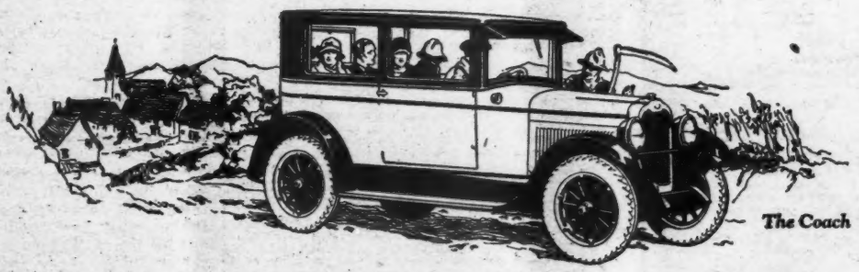


The Coach

WINNING AND HOLDING GOOD WILL

OAKLAND SIX

PRODUCT OF GENERAL MOTORS

Niagara
Soluble Sulphur Compound

The Complete Dormant and Delayed Dormant Spray

Will kill Scale, Aphis and prevent Scab.

Complete, Effective, Economical—Shipped Dry—You add the Water

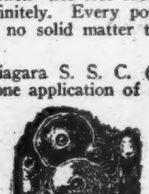
100-lb. drum of N. S. S. C. is equal to a 600-lb. barrel of Lime Sulphur Solution. The drum is easier to haul and handle. There is no freight to pay on 500 lbs. of unnecessary weight—no barrel to return—no leakage—no evaporation—no crystallization—nor loss from freezing. Air-tight drums keep Niagara S. S. C. indefinitely. Every pound paid for is a pound of effective spray material with no solid matter to clog valves, sieves, pumps and nozzles.

In the Delayed Dormant Niagara S. S. C. (complete in itself) controls Aphis Scale and Scab with one application of one material.

APHIS
A Most Stealthy Pest

Soluble Sulphur Compound, alone, when used in delayed dormant, at a time when rosy and green aphis eggs are in the cracked stage, will control these insects, if the buds are thoroughly wet by the spray and the application is made according to directions.

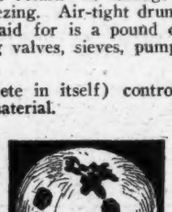
No addition of nicotine



SCALE
The Cause of Abandoned Orchards

San Jose Scale is continually devitalizing trees and blemishing fruit, making it unfit for market. Next year may be your Scale Year. Niagara Soluble Sulphur Compound rids the orchard of scale and keeps the trees free of this orchard foe.

Complete in itself



FUNGUS
Worst Enemy of Fruit

Apple scab infection frequently occurs during the delayed dormant period. Niagara Soluble Sulphur Compound is a fungicide and will prevent this possible infection of fungus and start the trees on the road to the production of clean fruit.

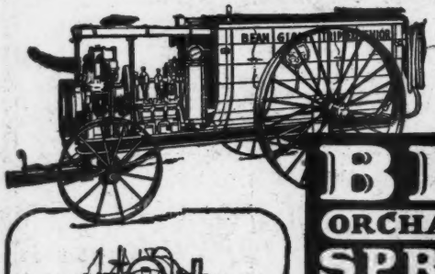
No addition of a fungicide

Peach Leaf Curl and Scale on peach trees are easily cleaned with N. S. S. C., but the trees must be sprayed when they are fully dormant.

See your dealer or write for booklet now

Niagara Sprayer Company, Middleport, N. Y.

Don't Pay Freight on Water



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ORCHARD AND CROP SPRAYERS

Bean "Universal"

Designed for potatoes and other truck crops, but quickly converted into an orchard sprayer. Adjustable to any rows.

Bean "Simplicity"

Capacity of 5½ gallons per minute at 250 pounds pressure. Completely equipped. Furnished with or without truck. Supplies one gun or two rods.

Bean "Little Giant"

A popular high-pressure barrel pump. Has large air chamber, ball valves, porcelain-lined cylinder.

MONEY MAKERS FOR THE GROWER

A Bean makes money and saves money for the grower every spraying day in the year. It makes money by delivering continuous trouble-free service day in and day out straight thru the spraying season, insuring rapid thoro work, clean trees, big production, and clean fancy fruit—the kind that enjoys the best market and brings the top price.

Low-Cost Operation

It saves money by its simple, sturdy construction, freedom from mechanical troubles, the ease with which the grower can make any necessary repairs or adjustments, and the fact that any parts that become worn after years of hard service may be quickly, easily, and cheaply replaced.

Long years of good *service*—long years of *low-cost service*—these make a Bean the best sprayer investment for any grower.

Good Service Everywhere

We build a complete line of hand and power sprayers and offer the best possible service thru two complete factories (Lansing, Michigan, and San Jose, California); a complete stock of parts at many important centers; and dealers everywhere.

Sign and send the coupon.

BEAN SPRAY PUMP CO.
15 Hosmer St., Lansing, Mich.
104 W. Julian St., San Jose, Cal.

Please send me your Sprayer Catalog and full information on the Bean Simplicity.

Name _____

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The Editor's Mail Box

Water Core of Apples

AMERICAN FRUIT GROWER MAGAZINE: Some of my apples had moist, semi-transparent sections around the core this year. What causes this and how can it be avoided?—A. C. E., Kansas.

ANSWER:—The apples with watery centers are probably affected with water core. This trouble is not thoroughly understood, but it certainly does not seem to be due to any insect or disease. In the belief of some of the best authorities, it is caused by a combination of excessive absorption of moisture by the roots, together with too little transpiration through the leaves. As a result, water passes into the inter-cellular spaces around the core, giving the watery appearance.

Some varieties are affected more severely than others. Some of the worst are Fall Pippin, Early Harvest, Yellow Transparent, Pound Sweet, Tompkin's King and Rambeau. Summer varieties usually suffer more than winter varieties. Apples in the tops of the trees commonly show more water core than those in the lower portions.

Well-managed and well-drained soil seldom produces water-cored apples. In thinning the fruit, other things being equal, thin more heavily in the top than in the other portions of the tree. Give the trees normal cultivation, and plant a cover crop during June or early July. If irrigation is practiced, supply only sufficient water to meet the normal needs. Spray the orchard in order to retain the foliage in good condition and thus keep the transpiration active. Do not prune the trees just before the fruit ripens as this would reduce the transpiration. Pick the fruit in its proper season and place it in cool storage at once.

How to Handle Apple Seeds

AMERICAN FRUIT GROWER MAGAZINE: Last fall I collected some fresh Jonathan and York Imperial apple seed, put them in a dry but not frost-proof place and the past spring planted them outside. But they did not sprout or show any sign of life at all. How should I have handled them to get them to grow?—V. C., Missouri.

ANSWER:—Your letter does not state just how you handled your apple seeds, but I presume you stored them in the dry condition and planted them outside in the spring. In all probability the seeds died during the winter because of excessive evaporation.

Many fruit seeds, including those of the apple, require careful treatment. In order to preserve the seeds over winter, they must be "stratified." With apple seeds this process is probably best accomplished by placing the seeds in alternate layers in sand in a shallow box. The box should be buried in a shallow location. You can separate the seeds from the sand in the spring with a sieve. The seeds should be buried in a well-drained place, but there must also be sufficient moisture to prevent drying out of the seeds. A covering of soil, leaves, or straw to a depth of one foot will usually provide satisfactory conditions. Alternate freezing and thawing is injurious, and the seed should be kept frozen continuously after freezing weather arrives.

The object of stratification is to keep the seeds alive and to cause the thick seed coats to partly decay. In the case of hard-shelled seeds, such as the peach, it also cracks some of the pits.

Stratified seed should be planted in seedling rows early in the spring, as soon as they are removed from storage. Avoid exposing the seeds to wind or sun for even a short time, for this will almost certainly kill many of them.

The growing of apple seedlings is a somewhat difficult matter. Furthermore, a deep, loose soil is necessary for best results. Growers who desire to grow their own apple trees will usually find it best to buy high-grade seedling roots directly from growers in Kansas, Nebraska or Iowa, where the soil is specially fitted for this purpose, rather than to grow their own seedlings.

Preventing Mice Damage to Trees

AMERICAN FRUIT GROWER MAGAZINE: Last year mice damaged a considerable number of my young apple trees. How can I prevent this damage the coming winter?—N. E. L., New York.

ANSWER: In order to control mice, you should remove trash and weeds from about the trees and wrap the trees with wire netting, paper or veneer.

Poisoning is quite effective and the United States Department of Agriculture recommends the following formula:

Mix together dry, one-eighth ounce of powdered strychnine and one-eighth ounce of baking soda. Sift the strychnine-soda mixture over one quart of rolled oats, stirring constantly to insure an even distribution of the poison through the grain. Heat the poisoned rolled oats in an oven until thoroughly warm. Mix three parts of melted beef fat with one part of melted paraffin, and sprinkle six tablespoonfuls of this mixture over the warm, poisoned rolled oats, mixing until the oats are evenly coated. Allow the grain to cool and it is ready for use.

If large quantities of the bait are needed, use one ounce of strychnine, one ounce of soda, eight quarts of rolled oats, and one and one-fourth pints of the beef-fat-paraffin mixture. It is very important to have the beef-fat-paraffin mixture hot and the poisoned rolled oats thoroughly warm; otherwise it will not be possible to obtain an even coating.

Tablespoonful quantities of the poisoned oats should be put in open-mouthed containers placed in the orchard. If mice are very abundant, a container should be used under every tree. A small drain tile makes a good container.

All poisoned baits and poison containers and utensils used in the preparation of poisoned baits should be kept plainly labeled and out of reach of children, irresponsible persons, and livestock.

Fruit Industry in Germany

AMERICAN FRUIT GROWER MAGAZINE: Fruit growing in Germany where I spent several weeks this summer is gradually expanding. I noticed through central Germany quite a number of young apple orchards consisting largely, I was told, of Russian apples which are adapted to the fairly cold winters in the Republic.

I was impressed everywhere with the demand for fruit. Many stands and stores would sell out by the middle of the afternoon, and the best fruits were snapped up early. There seemed to be a quantity of very fine cherries.

The more tender kinds of fruits are grown farther south, in France, Italy and Spain.

Germany imports a great deal of fruit from outside countries. It uses large quantities of dried fruits and apples. Before the war Germany was the second largest importer of apples from the United States, from 1900 to 1910, but Canada has occupied second place since 1911. Germany was third in importation of apples from us when the World War stopped relations. Since the war closed, apple exports from the United States to Germany have steadily increased, and they are now almost back to the former proportions.

Formerly most of the fruit was shipped direct to Germany. Since the war the tendency has been to ship the fruit through England. Most American exporters did not care to take the risk of shipping directly to

Germany. The English dealers were in better touch with the German markets than the American dealers, but the English dealers extracted large margins for this service. There is a very strong tendency at present for American exports of fruit to go directly to Germany.

Barreled apples were formerly popular in Germany, but now they are beginning to want boxed apples. Red apples are preferred during the Christmas holidays, but after about the middle of January yellow apples are in favor. Fairly large apples are desired.

Occasionally the Russian varieties planted in Germany bear heavily and during such years the American product is in light demand. The apples grown in Germany are smaller and not so attractive as the American apples, but some of the varieties have good eating qualities and all can be used for cooking.

A recent report of the Bureau of Commerce at Washington, D. C., shows that during 1910-1914 the United States shipped fruit to Germany to the value of $4,570,000 as an annual average. The fruit shipments constituted 2.18 per cent of the exports on the average. In 1920-1922 the annual average value of fruits exported was $1,005,000, and the exports of fruit constituted 0.39 per cent of the total exports to Germany.—*C. W. Price, New York.*

Black Rot on Apples

AMERICAN FRUIT GROWER MAGAZINE: Enclosed please find some leaves with spots on them. What caused these spots and how can I prevent them another season?—A. C. E., Kansas.

ANSWER:—The brown or gray spots on the apple leaves which you sent in are due to black rot. This disease attacks a considerable number of fruits and has been present in the Middle West for many years. On the apple it causes spots on the leaves; it causes rotting of the fruit, particularly in storage; it causes cankers on the branches; and it affects the roots of some varieties.

Some varieties are more susceptible to it than others. The Ben Davis, York Imperial, Twenty Ounce Pippin, Rome Beauty and Willow Twig are quite subject to the disease, while Grimes and most summer varieties are more or less resistant.

Black rot is caused by a fungus which spreads mainly through diseased fruit. The spots on the leaves first appear in late June or July and rarely become conspicuous until August or September. They are first concentric reddish-brown spots with a gray center. The spots become lighter in color with age. Cankers on the branches are reddish-brown and slightly sunken. They are mostly found on the older branches. They vary in size from mere spots while young to large spots that encircle and kill the branches.

To control black rot, several steps are necessary. First, you should destroy all rotten or mummied fruit ordinarily left in the orchard. Adopt good control methods for leaf and fruit eating insects, since the wounds left by these leave excellent avenues of attack for black rot. Cut out and burn all dead wood. In pruning, sterilize the tools after each tree is pruned. Coat the large wounds and the cankers which have been trimmed out with mercuric chloride, one part in 1000 of water. Paint the larger wounds with white lead paint. In addition to using the regular spray schedule for apple scab, etc., use lime sulphur or Bordeaux mixture about July 15 and again early in August.

Black Walnut Growing

AMERICAN FRUIT GROWER MAGAZINE: Please give me some information on growing black walnuts. When should the trees be planted for best results? How far apart should they be set? What kind of soil is best adapted for walnuts? Shall I use some of the seedlings found growing wild in this section or shall I purchase trees of known variety from a nursery? Some of the wild trees here bear worthless nuts and others drop their nuts before ripe. What are the causes of this?—F. W., Illinois.

ANSWER:—Black walnuts are fairly easy to grow, and I see no reason why you should not be able to grow them successfully in your vicinity. If you have not had considerable experience in propagating nut trees, I would suggest that you buy your own trees in preference to trying to propagate them yourself. The two best varieties of black walnuts are the Stabler and the Thomas. The nuts of these are larger than those of most seedlings and the kernels crack out much better. Furthermore, by securing trees of one of these varieties your nuts will be much more uniform in size and shape than if you plant seedling trees.

Walnuts like a rich, deep, fairly moist soil. At the same time, it should be well drained. You may have some difficulty in your vicinity in finding the right kind of soil for best results. This, in my opinion, will be the only possible obstacle in your section, with which I am personally familiar.

Walnut trees can be planted in the fall or in the early spring. You should plant the trees about 60 feet apart each way. During the early years of the grove you can plant other crops, or even early-maturing fruit trees, between the nut trees.

The reason some of the wild trees produce nuts which are no good and which fall off prematurely is because they do not possess desirable hereditary characteristics. I would suggest by all means that you use either the Stabler or the Thomas in preference to wild seedling stock. In case you propagate your own trees, you can grow your seedlings from the wild stock, but you should by all means bud or graft them to the Stabler or Thomas variety.

Cedar Rust Fungus on Apples

AMERICAN FRUIT GROWER MAGAZINE: I am sending you some leaves which are infected with orange colored spots with a growth on the undersides of the leaves. What caused these spots and how can I control them next year?—A. C. E., Kansas.

ANSWER: — The orange colored spots on the leaves are due to the apple cedar rust fungus. This fungus attacks both fruit and foliage and it is usually abundant wherever red cedars are present. One stage of the fungus winters over on the red cedar, and therefore if all red cedars were destroyed within a mile or two of your premises, the disease would practically disappear. In some sections, notably Virginia, the growers have secured legislation for the destruction of cedars within certain areas and this has helped greatly.

Where cedars are present, the only thing to do is to spray. By keeping the foliage and the fruit covered with lime sulphur or Bordeaux mixture, until about the last of May, very good results can usually be secured. Bordeaux mixture will be found more effective than lime sulphur for controlling cedar rust. Some varieties, including Benoni, Wealthy, Smith's Cider and Red June, are quite susceptible to the cedar rust fungus and should not be planted in sections where cedar rust is bad.

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At some of the great livestock markets nearly one-half of the deliveries are now made by truck. For the farmer shipping small lots the cost per head is appreciably reduced and the price advantage is in his favor. Shipping associations in 29 Ohio counties recommend trucks for movement of livestock. Fruits, livestock, grain, garden truck, dairy products, sand and gravel, etc., all are hauled with extra profit. The U. S. Dept. of Agriculture, reporting on farm-owned trucks, finds 95 per cent of them profitable investments.

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Cold, wet days—that's when Roup starts and sweeps through your flock. You know the symptoms—face swollen, running at eyes and nostrils, comb pale, whistle or sneeze when breathing, frequent wiping of beak on feathers, breath with catarrhal odor. Stop it quickly with

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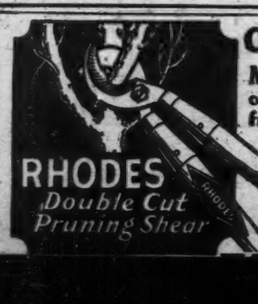

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IN THE November issue the responsibility of the directors of a co-operative was discussed in this department. While a great deal will depend on the directors, and while they must understand their duties and perform them, the chief responsibility will rest on the manager.

In the first place, the directors must select a manager very carefully. His record should be examined as far back as possible. After all, a man's character and ability are simply a reflection of his daily activities, his training and his experience. His associationships in the years gone by should be considered. High character in a manager is absolutely necessary for the successful operation of a co-operative.

The directors in selecting a manager must bear in mind that it is a very difficult position to fill and that therefore the men who can fill it are limited in number. A co-operative manager must have all the business ability that the manager of an ordinary business must possess, and in addition he must have the ability to deal with many kinds of people and to get along with a very large proportion of them. Upon a manager's ability to deal with his members, as well as influential people outside the association, will depend his success quite as much as upon his business ability.

Some promoters of co-operative marketing have over-emphasized the hiring of specialists as managers, salesmen, etc. Specialists are all right in some technical work, such as advertising and sales work, but even in these positions the men with a general understanding of the entire industry will give the best results. Men who understand the industry in a broad way and who at the same time are specialists in the line of work they are doing will always have the edge on men who are pure specialists and nothing else.

The general manager of a large co-operative should by all means know all sides of the industry. His success, both from his own standpoint and that of the association, absolutely depends on it. Sometimes in starting a new association a business man or produce man without a knowledge of the growers' viewpoint is selected as manager. Such managers usually prove unsuccessful sooner or later. The most successful co-operatives in the country are managed by men who thoroughly understand the growers' viewpoint and who are real co-operators. One needs simply to mention such men as Dezell and Teague of California, Bullard of Georgia and Commander of Florida. The writer would much rather select as manager a man with a general understanding of the industry and let him learn any technical phases necessary than to take a specialist and expect him to learn the growers' viewpoint.

A manager's mental attitude should be carefully considered. Has he been engaged in activities opposed to the growers' interests? Has he ever taken a stand against growers anywhere? Is he thoroughly sincere in his desire to serve a co-operative? Does he have any counter ideas in his make-up which may test his loyalty to the association?

No manager should be employed on a long-time contract basis except possibly in the case of a thoroughly established organization. Men who are occupying other positions may say that they do not wish to leave their places without assurances that the new position will be permanent. Such an attitude in itself is fairly good evidence that the man has not the proper viewpoint for a co-operative manager. He should be willing to let his position depend on his ability to render service, and he should be willing to take the same chances on the proposition that he will be asking every member of the organization to take who markets his products through the organization. A co-operative manager who tries to insure the permanency of his position by a hog-tied contract is not the kind who can make a success of co-operative marketing.

THE WESTERN New York Fruit Growers' Co-operative Packing Association has discontinued the Cataract brand and has adopted in its place the "Yorkwin" brand. The new name has been copyrighted and will be placed on the best products marketed.

Under the new management the association will co-operate with the state and government in shipping point inspection work. Formerly, the association attempted to perform its own inspection service. During the present marketing season the association will pack most of its apples two and one-half inches and up. This pack meets the established demands and seems to be the most practicable pack for New York apples. The association may pack some two and one-fourth inch fruit for export. The co-operative has a good trade with chain stores for quarter-inch sized apples, and preparations are being made to take care of this trade.

The association expects to ship about 1000 cars of fruit this season. Under the new management overhead expenses, which were unduly high in former years, have been cut to the limit. Organization has been simplified in several ways. These improvements, together with the expected increase in tonnage, should reduce operating costs materially.

One of the locals which withdrew some time ago is now back in the fold. This shows a fine spirit and a broad-minded attitude on the part of both the local and the central. Such a spirit will go a long way toward making co-operative marketing a success.

Thomas E. Milliman, the new manager, who came to the association from a successful record with the Dairy League, is reported to be handling the situation very satisfactorily.

"THE INDIVIDUAL members are the rocks out of which a co-operative is built," said Prof. H. E. Erdman of the University of California at the convention of the American Institute of Co-operation. "It is largely their mental attitude which makes them willing or unwilling to co-operate. When one becomes a member of a co-operative association, he should remember that real co-operation involves a large measure of give and take. The member shares with his fellow members the risks and losses as well as the possibilities of gain. In entering such an organization, he should be sure that his fellow members undertake a thorough job of financing it, and having done this, he must give close attention to the problems of management."

Prof. Erdman approved organization on a commodity basis, but he emphasized that this did not necessarily

mean a single commodity. He gave illustrations of several successful organizations in California and elsewhere which are handling groups of related commodities successfully.

He listed the following factors as being essential to the success of co-operatives: (1) absolute grower control; (2) quick financing facilities; (3) harmony of interests between members and management; (4) a structure that will facilitate the development of competent organization leaders; (5) a fair but water-tight marketing agreement between the members and the association; (6) a sufficient volume of business to insure a reasonably low cost of operation; and (7) efficient management. The attitude of the members toward these matters plays a large part in the operation of a co-operative association, in the opinion of Prof. Erdman.

IN ROUND figures, the California Fruit Growers' Exchange spent $900,000 for advertising the 1923-24 citrus crop. Because of the large production in Florida and the high percentage of undersized fruit in California, it was believed necessary to make unusual inducements. As a result, oranges were sold in many districts by the peck, and special sales on odd quantities were conducted. Since lemon shipments were 53 per cent above those of 1922-23, intensive methods had to be used in the disposition of this crop also. Increased sales of fruit were made in Honolulu and the Orient, and shipments to the United Kingdom were three times those of any recent year.

The advertising campaign included 53,000,000 copies of full color pages in magazines of national circulation and 175,000,000 insertions in daily newspapers in the United States and Canada. In addition, farm papers, trade papers, posters, window displays and special articles were employed. More than 1,000,000 specially prepared bulletins were distributed for classroom instruction in schools. The support of 3000 jobbers and 400,000 retailers was secured. During the year, 17 men from the dealer service department visited 44,000 retail stores. In addition to giving advice, these men placed in store windows 225,000 pieces of Sunkist and Red Ball display material.

The advertising assessments of the California Fruit Growers' Exchange have increased almost regularly since 1919, as shown by the following table:

Year	Oranges and grapefruit. Cents per box.	Lemons. Cents per box.	Approximate assessment. Dollars.
1916.....	2.5	4.0	335,000
1917.....	2.25	4.0	395,000
1918.....	2.0	4.0	215,000
1919.....	2.5	4.0	425,000
1920.....	2.5	6.0	515,000
1921.....	3.5	6.0	780,000
1922.....	3.5	6.0	490,000
1923.....	4.0	6.5	790,000
1924.....	4.5	7.0	900,000

"A REALIZATION by leaders in the co-operative movement that co-operation is not merely a means for obtaining a better price for a single year's crop, but that it is a means for gradually adapting production to market demands, for insuring less wasteful distribution, for reducing the spread between what the farmer receives and what the consumer pays, for aiding in the solution of agricultural credit problems as they arise, for improving the rural life of the Nation, for insuring a better understanding of national and international problems—this realization, implanted by leaders and future leaders, such as I see before me, in the minds and hearts of the farm people of the United States, will do much to insure not only the success of co-operation but increased prosperity and stability for the Nation."—*Secretary Jardine.*

Government Fruit Crop Estimates for October 1

THE GOVERNMENT apple crop estimate for October 1 shows a total crop appreciably below that of last year, while the commercial crop is well above that of last year. The figures for both the total and the commercial crop by states and for the country as a whole are presented in table 1.

The total pear crop for 1925 is estimated at 18,164,000 bushels as compared with 18,628,000 bushels for 1924 and a five-year average of 17,056,000 bushels.

The grape crop for 1925 is estimated at 1,780,000 tons as compared with the five-year average of 2,030,000 tons.

TABLE 1—GOVERNMENT APPLE CROP ESTIMATE FOR OCTOBER 1

State.	Total Crop. Production in thousands of bushels. Indicated for 1925 by Oct. 1 condition.	Harvested. 1924.	Harvested. Five-year average, 1920–24.	Commercial Crop. Production in thousands of barrels. Indicated for 1925 by Oct. 1 condition.	Harvested. 1924.	Harvested. Five-year average, 1920–24.
New York.....	26,680	23,800	29,077	4,975	3,738	4,748
Pennsylvania	6,630	7,267	10,063	972	780	1,006
Virginia	6,784	16,184	9,692	1,198	2,520	1,588
West Virginia....	4,160	7,000	5,881	663	800	910
North Carolina...	3,007	6,500	4,423	150	307	184
Ohio	7,275	8,325	9,074	606	694	828
Illinois	7,005	6,200	6,333	1,168	925	1,108
Michigan	10,756	7,333	11,032	1,864	1,222	1,883
Iowa	2,200	3,000	3,360	73	150	221
Missouri	4,784	5,300	5,395	606	588	728
Kentucky	2,722	6,075	3,886	73	163	130
Tennessee	1,665	4,500	3,019	39	106	96
Arkansas	3,238	3,630	2,615	526	787	541
Colorado	2,691	3,024	3,263	770	806	838
Idaho	4,941	2,178	3,920	1,433	600	1,093
Washington	28,152	23,000	26,468	8,160	6,650	7,525
Oregon	5,760	6,500	6,325	1,382	1,750	1,452
California	6,170	7,370	7,644	1,234	1,474	1,511
U. S. total.....	164,042	179,101	181,465	30,134	28,587	30,386

The peach crop is estimated for this year at 47,730,000 bushels as compared with a production of 53,137,000 bushels in 1924 and a five-year average of 46,519,000 bushels.

Table 2 gives the estimates for a number of citrus and subtropical fruits, as well as walnuts, in California and Florida for 1925 as compared with 1924 and the 10-year average.

TABLE 2—CROP ESTIMATES FOR CALIFORNIA AND FLORIDA

(Normal = 100 per cent.)

Crop.	Condition October 1, 1925.	Comparisons: Condition September 1, 1925.	Comparisons: Condition October 1, 1924.	Comparisons: Average October 1 condition, 1915–1924.
Almonds, California.....	56.0	56.0	60.0	71.9
Figs, California.....	80.0	81 0	66.0	87.5
Grapefruit, Florida.....	73.0	83.0	85 0	77.7
Lemons, California.....	80.0	79.0	79.0	79.2
Limes, Florida.....	80.0	82.0	86.0	77.7
Olives, California.....	69.0	69.0	36.0	65.2
Oranges, California	82.0	82.0	82.0	75.6
Oranges, Florida	78.0	86.0	89.0	82.5
Prunes, California[1].....	65.0	66.0	65.0	74.5
Walnuts, California.....	82.0	95.0	90.0	84.8

[1] Production.

FACTS ABOUT A FAMOUS FAMILY

Time Payments on General Motors cars

THE PURCHASE of a car out of income is a universally accepted practice. But there is a difference in time payment rates.

Six years ago General Motors organized the General Motors Acceptance Corporation (*GMAC*) to make credit available at the least possible cost to purchasers of General Motors cars. *GMAC* rates have always been low. Last August they were still further reduced. And the standard time sale price of any General Motors car is the cash delivered price, plus *only* the *GMAC* charge. Dealers will be glad to show you the official *GMAC* Rate Chart.

The important thing to the purchaser is the total cost of a car. The time payment charge is a part of the total cost when a car is bought out of income. These *GMAC* reductions therefore mean, in such instances, a substantially lowered total cost.

They are in accordance with General Motors' policy of passing on to the car buyer economies wherever effected—in financing as well as in engineering, manufacturing or selling operations.

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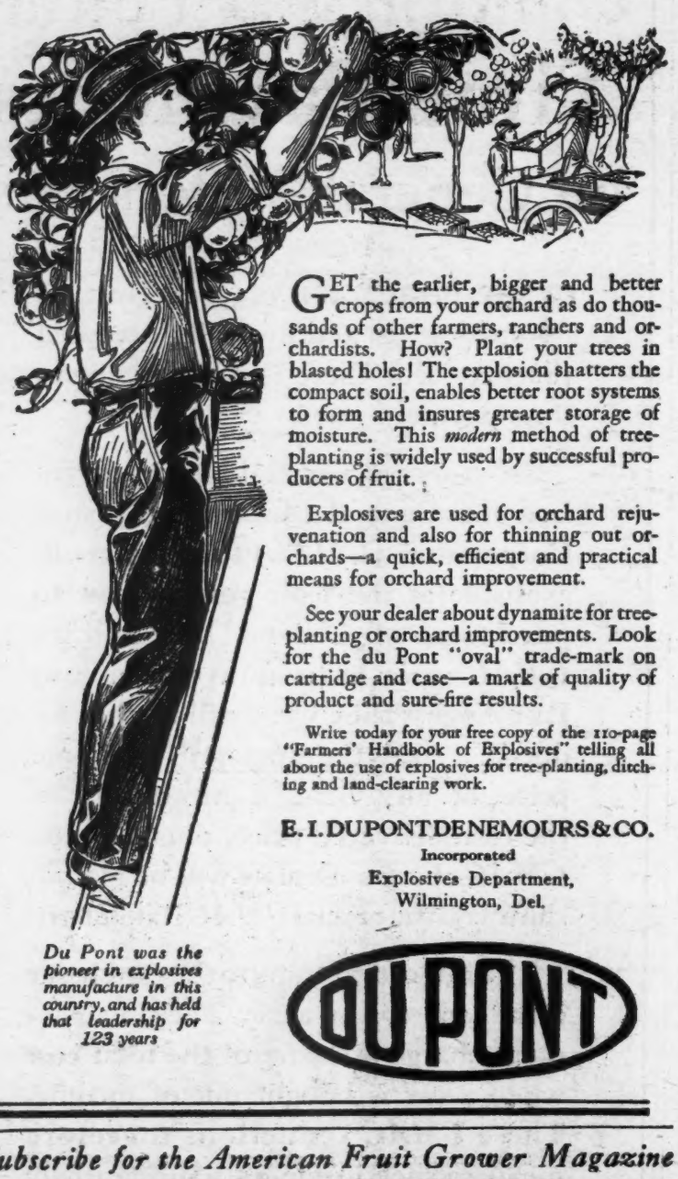
BUICK · CADILLAC · GMC TRUCK

Trees planted in blasted holes bring bigger profits



GET the earlier, bigger and better crops from your orchard as do thousands of other farmers, ranchers and orchardists. How? Plant your trees in blasted holes! The explosion shatters the compact soil, enables better root systems to form and insures greater storage of moisture. This *modern* method of tree-planting is widely used by successful producers of fruit.

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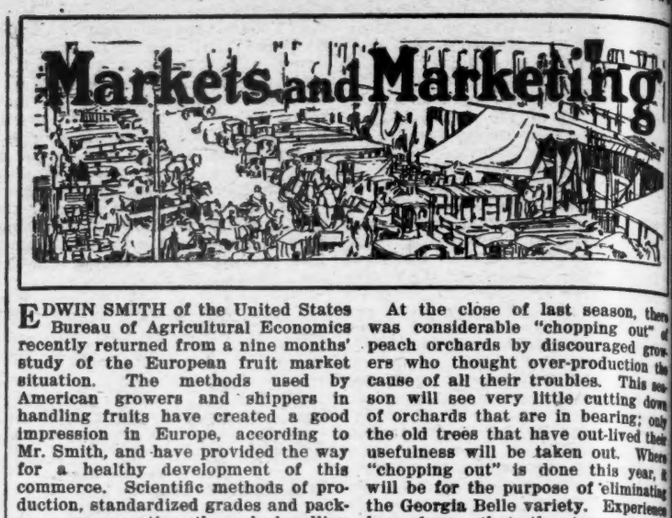

EDWIN SMITH of the United States Bureau of Agricultural Economics recently returned from a nine months' study of the European fruit market situation. The methods used by American growers and shippers in handling fruits have created a good impression in Europe, according to Mr. Smith, and have provided the way for a healthy development of this commerce. Scientific methods of production, standardized grades and packages, conservation through handling and refrigeration, and marketing efficiency are the factors which will help American fruit growers to develop the European markets for their products.

"Present indications," said Mr. Smith, "are that Europe will absorb as many American and Canadian apples this year as last, although the English apple crop is better than last year. A heavy crop of apples in Nova Scotia will somewhat offset Virginia's shortage, while in boxed apples British Columbia's reduced crop will ease up on the competition of the Pacific Coast states.

"One of the topics of conversation among members of the fruit trade of Great Britain relates to the tremendous strides made during the last year by grapefruit in the British Isles. It jumped from one of the rare exotic fruits, seen only in large centers, to a regular article of trade. Were American producers to get behind it with a continued educational program, it seems certain that grapefruit might be absorbed in European markets in large quantities."

PEACH growers who at the close of the 1924 season were discouraged and ready to quit are now optimistic and happy. That, in a nutshell, sums up the result of the 1925 peach season in Georgia, both as to the financial returns and the way growers feel about them. It also outlines the future course which will be pursued by peach growers of the state.

The 1925 peach shipments from Georgia were smaller by some 170 carloads than the crop of 1924. There was shipped out of the state this season 13,331 cars as compared with 13,504 cars last season. But that is a part of the story only. Last season, the bulk of the crop had to be marketed in a period of 30 days, but this season the marketing season returned to normal, and the fruit ripened over a period of six weeks, giving the markets more time to absorb the fruit and the growers a chance to divert it to the best markets.

In a way, growers profited this season from the glut last year, because they were compelled last year to place fruit on many markets never touched before. This year these markets demanded Georgia peaches and paid a good price for them. Thus growers benefited from three things—a smaller crop, which usually means a better crop; a longer marketing season; and a wider field of markets.

While no official data on the amount received for the 1925 crop is yet in, it has been estimated that the returns will total $8,425,000 or more. This will mean an increase of a million dollars over the price received last year, in spite of reduced shipments by nearly 200 cars, and goes to show that quality production and not quantity production is what brings money to the fruit grower. A smaller yield per tree yielded a better quality of fruit, and Georgia peach growers have learned this lesson well and will profit from it in the future.

At the close of last season, there was considerable "chopping out" of peach orchards by discouraged growers who thought over-production the cause of all their troubles. This season will see very little cutting down of orchards that are in bearing; only the old trees that have out-lived their usefulness will be taken out. Where "chopping out" is done this year, it will be for the purpose of eliminating the Georgia Belle variety. Experience has shown that the two varieties, Georgia Belle and Elberta, compete with one another on the market, and growers have determined to get rid of one of them. The higher color and better shipping qualities of the Elberta make it the best one to retain.

There will be practically no planting of new orchards save to replace old fields that have out-lived their usefulness. Georgia growers have determined to hold the crop within 13,000 carloads until it is certain that the markets of the country have been developed to the point where more fruit can be disposed of at a profit. This is not a "hold-out" movement; it is simply a measure of protection. Growers last season learned a bitter lesson in having more fruit than the market could absorb.

On the whole, while the peach growers lost money during the 1924 season, they have taken their lessons well to heart. They are slowing up on the planting of new orchards. They are learning the value of culling and of marketing only the best fruit. They are learning the value of co-operation. And as a result, they are on their way towards making more and more of a profit each year. Georgia peach growers have made a substantial profit this year and are optimistic over the outlook for the future.—*J. H. Reed.*

THE DRIED fruit industry, particularly the raisin industry, has grown rapidly in Australia and is becoming an important national industry. Sultanas, lexias, currants, pears, peaches, apricots, prunes and nectarines are being grown commercially in over 40 districts. In 1924, 70 packing houses packed 36,000 tons of all varieties of fruits, valued at about $7,500,000. There are between 5000 and 6000 growers engaged in dried fruit production.

The crops are grown principally under irrigation. In certain sections long hot summers enable the growers to sun-dry their products. In southern districts of south Australia and Victoria, on the Swan River in west Australia and in Tasmania the fruits are grown with natural rainfall and are mostly dried by artificial methods.

The Australian Parliament is assisting growers in developing a national plan of marketing and nearly $1,000,000 has been provided for advances to growers to enable them to produce next year's crop.

A SERIES of valuable reports on the foreign fruit marketing situation has recently been issued by the Bureau of Agricultural Economics. Most of the reports were written by Edwin Smith, who has been making a detailed study of the foreign markets. Some of the reports, however, have been prepared by American consuls at different points, and a few were prepared by prominent growers and shippers.

The reports include information on the general foreign market situation, as well as detailed information on the

marketing situation in various countries and cities of Europe. The reports, which are in mimeographed form, can be obtained from the Foreign Section, Bureau of Agricultural Economics Library, Washington, D. C.

A MIMEOGRAPHED report on fruit and vegetable unloads in Kansas City during 1924 has been issued by the Bureau of Agricultural Economics. It was prepared by A. E. Prugh after an exhaustive study of the question. The report includes a large outline map showing each state and the number of cars received from it. The statistical tables are accompanied by a general discussion of the sources of supply and the railroad facilities to Kansas City. A description is also included of the federal market news service in all of its functions. The report may be obtained free of charge from the Bureau of Agricultural Economics, 212 Railway Exchange Building, Kansas City, Mo.

THE NATIONAL Canners' Association has adopted a Code of Ethics to govern its members in their business relations with the public. The association has issued the following statement of principles:

"To use in the preparation of our products only suitable materials which are sound and wholesome.

"To employ sanitary and hygienic methods and equipment in the operation of our plants, to comply with the Sanitary Code of the Association and all food laws and regulations.

"To maintain the highest standards of quality.

"To truthfully describe and represent our products.

"To fulfill both the spirit and letter of all contracts.

"To recognize always a paramount obligation to safeguard the interests of the consuming public."

"THE COST of Marketing the Apple Crop of 1923" is the title of Bulletin 224 of the Massachusetts Agricultural Experiment Station. The author is L. P. Jefferson. The object of the study was to determine the cost of marketing apples, what grades may be marketed with profit, the margins over cost of marketing which are returned to growers by various sales methods, and the type of containers which give best results. Conclusions are drawn regarding each of these factors.

The bulletin discusses grades, methods of sale, total cost, picking, sorting, containers, selling cost, transportation, cider apples, and prices and margins. A copy may be obtained from the Massachusetts Agricultural Experiment Station, Amherst, Mass.

A SURVEY by A. J. Surratt, agricultural statistician of Illinois, shows that in a normal year 18 per cent of the apples produced in the state are summer varieties, 29 per cent fall and early winter sorts, and 53 per cent winter apples.

SHIPPING point inspection in Illinois has developed rapidly since the service was established two years ago. The past season eight inspectors were kept busy practically all season taking care of requests for inspections, according to Supervising Inspector H. W. Day. The inspectors are chosen on the basis of their ability to perform inspection service.

Monthly Market Review

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on October 10:

"Shipments of fruits and vegetables continue heavy. The total carlot movement this season is about the same as last season. Some of the important truck crops have been short, but the season was early and prices attractive. It has been an active period through September and October for apples and pears.

"Usually at this time of year prices tend downward until buying begins for the holiday markets. This year in October the market had already begun to recover from the low point. Most of the leading products have been selling as high or higher than a year ago.

Europe Buying Fruit

"The fruit export season started with quite a boom in apples and pears. Apple sales on British markets show the usual high range for early arrivals. Fall apples sold in September at $4-$10 per barrel, and Virginia Yorks, the first winter apples, ranged at $4.50-$7.25. These were rather small and poorly colored owing to drought and maturity before cold weather. Shipments increased rapidly and prices became less satisfactory. Unusually heavy shipments from New York threaten to over-supply the foreign markets, as often happens in October and November. The market is starting like a typical export season, which usually opens at high prices, meets heavy shipments and slumps in prices in mid-autumn, recovers before the holidays and slumps again afterwards, finally recovering gradually during winter and spring as the supply decreases. Apple exports last season were nearly double those of 1922-23, although the commercial crop was 10 per cent lighter. Indications are that 1925-26 will be another great apple export period with a somewhat larger proportion of boxed apples. Export demand may cure some of the troubles of northwestern shippers who have been a little worried because prices out there have been 10c to 50c lower than last season on some varieties and grades. Taking into account the more costly and exacting pack prevailing in the Northwest, the price basis in the two regions is not far apart. A representative western price for comparison would be $1.50 per box at shipping point and in the East $1.25 per bushel.

"Apple shipments became very heavy in October, sometimes reaching 1200 carloads per day and actually surpassing the volume of potato shipments for a while. Size and appearance of the apple crop are commented upon favorably in the various northern orchard sections. A large percentage of the crop seems fit to grade No. 1.

"Pears have been selling high in British markets. There were sales of Bartletts from $12 to $22 per barrel in September, and some other kinds brought $5 to $7 per box. The pear crop was nearly a failure in most producing sections of Europe, and American exports had the market mostly to themselves. The domestic market has been good. Western New York Kieffers are coming fast and are reported to be of large size and fair quality, selling for $3 per barrel at shipping point. Many of these in basket pack are on sale in city markets at $1 to $1.25. Bartletts out of storage range from $2.25 to $3, and western Bartletts up to $3.75 per box. Seckels have reached $2.25 to $2.50 per basket.

Grapes Active

"Grape shipments at times have been heavier than those of any other fruit or vegetable. Weekly grape movement at the height of the season was 10,000 carloads compared with 7600 cars of apples and 5900 cars of potatoes. Most of the enormous receipts were from California. New York and Michigan led in supplying eastern grapes, but they have not more than a two-thirds crop this year. The buying movement, so far as reported, has been nearly double that of October, 1924. New York Concords in 12-quart baskets have been selling to the jobbing trade in principal cities at 75c to $1, while in the western New York shipping section the ruling price was $90 per ton, which was practically the same price as quoted in Michigan shipping sections. California shipping points quoted Malagas and Tokays at 80c to 90c per crate."

Unharnessed Power

Mighty torrents rush down a mountainside —tons of water plunge over a precipice:— "*Unharnessed Power!*" This thought grips the minds of men wherever water-power has been found.

Dry weather comes—that roaring power has shrunk to but a feeble trickle. Reservoirs must be built if water power is to be dependable! Miles of pipe and tunnel, and even auxiliary steam plants are often needed before a water-power development becomes a practical reality.

In building an electric water-power station, the cost is from two to four times greater than for a steam plant of equal size, and often taxes and interest charges alone more than outweigh the annual coal bill for the steam plant.

With seventy percent of all our water power west of the Rockies, and seventy-nine percent of the demand for power east of them, the part which water power plays in our electrical development must always be limited.

Unharnessed power cannot give electric service. If water power is to be utilized, some one must pay the cost of putting it in harness.

How water is to be best utilized for the further electrification of agriculture is now being studied by fifteen state committees working with the national committee. The Committee on the Relation of Electricity to Agriculture is composed of economists and engineers representing the United States Departments of Agriculture, Commerce and the Interior, American Farm Bureau Federation, National Grange, American Society of Agricultural Engineers, Farm Lighting Manufacturing Association and the National Electric Light Association.

If you are interested in this work, write for a booklet describing it.

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Cuts from Both Sides of the Limb—

Cuts 1½ Inch Limbs with Ease.

No more handle trouble.

Forged from fine crucible steel carefully tempered in oil, and fitted with hardwood hand grips, which cannot come off, split or pinch the fingers. Length 24". Wt. only 3 lbs. Price $3.75 post paid. Cash with order or C.O.D. West of the Miss. add 25c. Satisfaction or money back. Circulars on request. Dealers wanted.

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From hand atomizers to the high pressure triplex power sprayers —every "Hayes" is guaranteed to do the work for which it is intended. All working parts carefully built and guaranteed. Hayes sprayers cost less considering their long useful life of economical service. Easy to operate.

Spray for profits— don't let millions of insects infest trees, vegetables or animals. Pests cannot escape the spray produced by any one of Hayes Sprayers. If you have fruit trees or a vineyard, ask us about the famous "Fruit-Fog" Power Sprayer.

FREE We will send the Hayes Sprayer catalog free—it describes and pictures the 50 types of Hayes Sprayers—write for your copy today.

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The famous Indian River oranges and grapefruit; truck crops in wide variety and pineapples provide an income for every month in the year.
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Marion County
FLORIDA

Coming Horticultural Meetings

FIFTY-SEVENTH State Fruit Growers' and Farmers' Convention, Sacramento, Cal., November 3-5. Director, G. H. Hecke, Department of Agriculture, Sacramento, Cal.

Annual meeting New Hampshire Horticultural Society, Manchester, November 11-13. Secretary, Alfred L. French, Contoocook, N. H.

Annual meeting Peninsula Horticultural Society, Easton, Md., November 17-19. Secretary, Wesley Webb, Dover, Del.

Annual meeting Wisconsin State Horticultural Society, Eau Claire, November 18-20. Secretary, Frederic Cranefield, Madison, Wis.

Annual meeting Iowa State Horticultural Society, with affiliated societies, Ames, December 1-2. Secretary, R. S. Herrick, State House, Des Moines, Ia.

Annual meeting Michigan State Horticultural Society, Coliseum Building, Grand Rapids, December 1-3. Secretary, H. D. Hootman, East Lansing, Mich.

Second bi-annual fruit growers' short course, University of Kentucky, Lexington, December 1-4. Kentucky State Horticultural Society and the College of Agriculture co-operating. Secretary, Ben E. Niles, Henderson, Ky.

Annual meeting Minnesota State Horticultural Society, Court House, Minneapolis, December 1-4. Secretary, R. S. Mackintosh, St. Paul, Minn.

Fifty-ninth annual meeting Kansas State Horticultural Society, Kansas City, Mo., December 8-10, in conjunction with meetings of American Pomological Society and Central States Horticultural Exposition. Secretary, James N. Farley, Hutchinson, Kans.

Annual meeting Missouri State Horticultural Society, Kansas City, Mo., December 8-10, in conjunction with meetings of American Pomological Society and Central States Horticultural Exposition. Secretary, Patterson Bain, Jr., Columbia, Mo.

Annual meeting American Pomological Society, Kansas City, Mo., December 8-10, in conjunction with Central States Horticultural Exposition. Secretary, H. C. C. Miles, Milford, Conn.

Central States Horticultural Exposition, Convention Hall, Kansas City, Mo., December 8-10. Secretary, George W. Catts, Kansas City, Mo.

Annual meeting New Jersey State Horticultural Society, Chalfonte-Haddon Hall, Atlantic City, December 9-11. Secretary, H. H. Albertson, Burlington, N. J.

Annual meeting Indiana Horticultural Society, Claypool Hotel, Indianapolis, December 10-11. Secretary, Monroe McCowan, Lafayette, Ind.

Annual meeting Illinois State Horticultural Society, Urbana, December 16-18. Secretary, H. W. Day, Springfield, Ill.

Thirty-seventh annual meeting South Dakota Horticultural Society, Sioux Falls, January 5-7, 1926. Secretary, N. E. Hansen, Brookings, S. D.

Annual meeting Pennsylvania State Horticultural Association, in connection with State Farm Products Show, Harrisburg, January 19-21, 1926. Secretary, S. W. Fletcher, State College, Pa.

National Rootstock Survey

(*Continued from page 5*)

the Mahaleb is the preferred stock all over the country for sour cherries. In other words, as was previously mentioned, the Mahaleb seems to be the favored stock for both sweet and sour cherries when seen from a nationwide point of view.

Demand for Plum Stocks Varies

Considerable variation appears in the demand for the plum stocks. The peach root is the favored stock in the southern states and California, while the Myrobalan leads in the North Atlantic states. The Marianna root is evidently a favored stock in the south where it ranks next to the peach. In the North Plain states the Americana plum is practically the only one used as a stock, nearly 96 per cent of a million plum trees reported being propagated on this root. In the Central states nearly half of the plum trees were on this root, while the remainder were on Myrobalan and peach. The peach root leads all others in the Northwest states. Apricot, sand cherry and almond are used in some sections to a small extent as stocks for plums.

California and Northwest nurserymen are the most important propagators of prune trees. In California the Myrobalan is the favored root while in the Northwest the apricot takes first place. The peach ranks second in both sections.

French Roots Most In Demand for Pears

Japanese and French pears still form the important stocks for pears, some sections favoring one and others favoring the other. The southern states and California prefer the Japanese. This is also true with the Northwest states. However, all other sections where pears are produced in any quantity favor the French. It will be noticed that 20.2 per cent of the pears in the North Atlantic states were on quince root. Many sections reported the pear on Ussuriensis, especially the North Plain states and the Northwest states.

But few sections of the country reported apricots. The peach took first place as a stock for this fruit in the North Atlantic and southern states, while in California the apricot on apricot root was in greatest demand, followed by the apricot on peach.

In reference to peaches, the figures show that the peach on peach is the most popular combination, as practically all peaches sold are on this root. Many other stocks are being used to a slight extent, and no doubt have their places, but it is doubtful if the peach root will be ever forced from the lead.

Only one state reported almonds in large amounts, namely, California. The greatest demand was for the almond on peach root with the almond root itself in second place.

Although a survey of this type may seem to have but little value for the fruit grower, other than interest, it should open up the eyes of every fruit grower who has neglected the portion of the tree he cannot see, namely, the root system. The variations shown to exist in all sections of the country as far as the rootstock demand is concerned, are due to definite conditions, such as difference in soil, moisture, climate, etc. Many growers seem to give these factors little consideration when ordering trees, the results being that the improper stock is often selected. The outcome of such a procedure is known to all. Thus, how important it is that great care be exercised in the selection of fruit tree rootstocks.

THE OXFORD County (Maine) Farm Bureau will hold a fruit show at South Paris, Me., November 4-6. The exhibits will be divided into five classes, consisting of fruit in barrels, cartons, E-Z Pac baskets, variety displays and individual fancy displays of not less than eight bushels.

The prizes offered are very attractive and are a marked improvement over the prizes offered at many shows. County Agent R. F. Thomas has been one of the active forces in promoting this show.

The canny Scot was not quite sure whether business might not keep him away from his evening meal.

"Jeannie, ma girl," said he to his wife ere he left home in the morning, "if I am not able to be hame I'll ring up at six precisely. Dinna ta' the receiver off, and then I'll na hae to put in ma tupence."

The plates for the front cover page of this issue were loaned to us by the California Fruit Growers' Exchange. We take this opportunity to extend our thanks to the exchange for this favor.

Can one tobacco satisfy a man with 45 pipes?

This smoker has found a tobacco that makes his good pipes taste better and his bad pipes taste good

You might imagine that the law of averages would require a man with 45 pipes to smoke a variety of tobaccos.

Evidently it doesn't work that way, for here is a pipe connoisseur who after vainly trying every tobacco his tobacconist could mention, finally got around to Edgeworth. The result is, his humidor is now "Edgeworthized."

Mr. Sonnenblick makes application for a life membership in the Edgeworth Club. All in favor say "Aye."

But first read his letter:

Larus & Bro. Co.,
Richmond, Va.
Gentlemen:

When a man has 45 pipes he certainly is up against it for an all-round tobacco. But first, about my pipes. There are 2 Dunhills, 6 Comeys, 4 BBB's, 4 Kaywoodies, 2 Petersons, 2 GBD'S and the usual meerschaum, calabash, corncob, etc. Some were sweet from the start, others remained obdurate and bitter despite the fact that I used every American brand and every English brand I could get or my tobacconist could mention. Fancy prices! Hang the price. I wanted pipe satisfaction. The brands I tried failed; the mixtures I made failed because the tobacco varied.

I saw the ads written by Edgeworth smokers, but they sounded too good to be true. I didn't try Edgeworth in despair, but just to see how less bad it might be. Well, it is praise enough when you know that my office humidor has been Edgeworthized. Now my good pipes taste better and my bad pipes taste good.

If you've got a life membership open, put me down. It's the King Bee of tobaccos and I think I'm a qualified judge.
Respectfully yours,
Ira J. Sonnenblick.

Let us send you free samples of Edgeworth so that you may put it to the pipe test. If you like the samples, you'll like Edgeworth wherever and whenever you buy it, for it never changes in quality. Write your name and address to Larus & Brother Company, 13K South 21st Street, Richmond, Va.

We'll be grateful for the name and address of your tobacco dealer, too, if you care to add them.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Edgeworth Ready-Rubbed are packed in small, pocket-size packages, in handsome humidors holding a pound, and also in several handy in-between sizes.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready-Rubbed for the same price you would pay the jobber.

Bathing is a Pleasure

when all you have to do is turn a tap and fill the tub with clear, sparkling water. You can install

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Let us send you our new booklet J, and tell you how inexpensively you can have the convenience of running water.

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Plum and Pear Trees—*all budded from bearing orchards*. Also Grapes, Strawberry and Raspberry Plants and Asparagus Roots. Write for *free* Catalog and "Practical Plans for Home Planting."

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This Dainty Watch—platinum effect with sapphire crown, ribbon bracelet and fancy clasp, jeweled movement guaranteed 10 years. Worth $10 retail. Also beautiful cluster ring. Both yours for introducing finest assorted liquid perfume at $1 a bottle. Not a cheap toilet water, but a fragrant, lasting perfume—made of imported materials—a wonderful bargain at 1/10 the price. Send for 20 bottles and easy plan to get this beautiful Watch & Ring FREE. Send no money. We trust you.

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Yes, it does require experience and skill to grow good nursery stock, to grade it properly and deliver it in prime condition.

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"Yours for Growing Satisfaction"

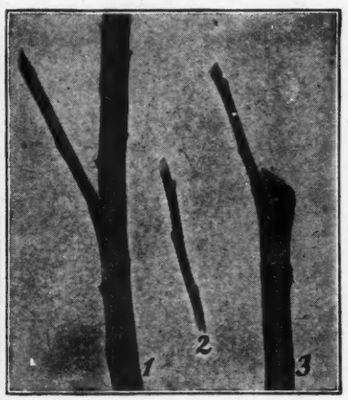
NEOSHO NURSERIES CO.
Neosho, Mo.

Propagation of Fruit Plants

(*Continued from page* 16)

covered with a heavy callus. In planting the root grafts, they should be firmly set in an upright position with the upper bud projecting above the top of the ground. They may be set in rows four feet apart and six or eight inches apart in the row.

Side Graft—A form of graftage suitable for most of the purposes for which the whip graft is used and which for many purposes is far simpler and more certain of success is the side graft. Strangely enough both amateurs and professionals seem less familiar with this graft than with the former. In making a side graft a long slanting cut is made in the side of the branch or stock to be grafted. The cut should extend diagonally downward and extend nearly half way through the stock. It is usually made about an inch or an inch and a quarter in length. A wedge-shaped scion is then prepared with one side of the wedge slightly thicker than the other. By grasping the stock above the diagonal cut and bending it slightly to one side the cut is sprung open, allowing the wedge-shaped scion to be pushed firmly into position. Care should be taken to match the bark of scion and stock on one side. After the scion is in place and the stock released, the natural spring of the wood will grip the scion and hold it securely in position so that no tying is necessary. The stock may then be severed just above the graft union and the whole union covered with wax.



Preparation of side graft

1, *Scion in proper position in stock; 2, scion prepared showing wedge-shaped point; 3, graft completed and waxed.*

The side graft is the most convenient form to be used in crown grafting of nursery stock. By crown grafting we refer to the placing of a graft in the young seedlings as they stand in the nursery row, the graft being inserted as near the ground as possible. It is also the easiest type of graft to be used in topworking young orchard trees up to four or five years of age. It is practical to use it only on branches up to about seven-eighths of an inch in diameter. It is doubtful if the side graft is as convenient to use in root grafting as would be the whip graft.

Cleft Graft—The most widely known method of grafting is the cleft graft, but it is probably the least valuable of any kind in the propagation of trees. Its main use is in the topworking of older trees in which the branches to be grafted are from one to two inches in diameter.

In making the cleft graft the stock is cut off square or with a slight bevel and split down the center with a chisel especially designed for that purpose (illustrated on page 3). The wedge-shaped end of the chisel is then inserted in the cleft, holding it open in readiness for the scion. Scions are prepared in much the same way as for the side graft except that the wedge-shaped point is made somewhat longer. Usually two scions are inserted in a single stock at either side of the cleft. Care should be taken to insert the scions at a slight angle so that the bark of stock and scion will match or at least cross in some one place. It is rarely necessary to tie the cleft graft in position since the natural spring of the wood will hold them quite firmly. The entire end of the cut stock as well as the tips of the scion, should be covered thoroughly with wax.

Some nurserymen use the cleft graft in root grafting. In this case the end of the root is split and a wedge-shaped scion pushed into position on one side so that the bark will match. the two being tied together with waxed string. It is neither as secure nor as good a graft as the whip graft for such a purpose.

In the next installment of this series directions will be given for propagation by budding, and information will also be presented regarding rootstocks which are used for propagating the various fruits.

Storage Scald in Barreled Apples

(*Continued from page* 8)

in shredded oiled paper were removed from storage the first week of February and placed in local grocery stores. Naturally, the grocers were somewhat skeptical at first, but they were instructed to hold the fruit at their store temperatures for one week and then to put it on sale. Payment was to be made on the basis of fruit sold, any fruit developing scald to be removed and returned. In other words, the grocer was guaranteed against loss from scald.

The result of these demonstrations was that in all cases the fruit was sold without loss, as no scald developed. The only complaint the grocers made was that they could secure no more of the same kind of apples. Check lots packed without protection scalded as soon as they were placed in a warm room.

The consumer also suffered no loss. Apples from the protected series kept under average house conditions demonstrated the keeping quality of the fruit after it left the grocery, which after all is the ultimate test.

In April a lot of York Imperials similarly packed was likewise disposed of with similar results, and again came the cry of "More Apples!" from the grocer.

Unfortunately, the barreled apple industry as a whole has not made the acquaintance of this method of scald control. Several scattered Indiana growers have tried it in a small way during the past season, and their results have stimulated a large amount of enthusiasm, both on their own part and on the part of the consumer. Reports that several co-operative packing associations are packing all barreled apples with shredded oiled paper indicate that its value is becoming realized by the grower. Naturally, it will take time for the method, now only in its infancy, to become widely adopted.

Several Chicago commission merchants who handled apples packed in shredded oiled paper during the past season have become enthusiastic, and their prediction is that its use will do for the barreled apple industry what the oiled wrap has done for the box pack of the Northwest.

Starking Apple Introduced

STARK Brothers Nurseries of Louisiana, Mo., called a meeting at Glassboro, N. J., recently in connection with the introduction of a new apple. The new introduction is to be known by the name Starking. It is said to be a blood red Delicious that developed by sporting from the ordinary Red Delicious variety. The new variety appeared in the orchard of Lewis Mood at Glassboro.

The meeting was well attended by growers from nearby territory and there were also present a number of prominent horticulturists and leaders from various parts of the country. Addresses were given by a number of those present.

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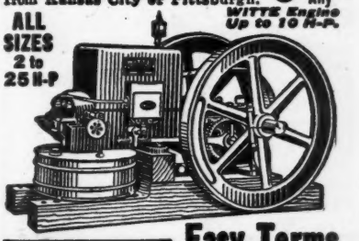

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The Orchard Home Department

Don't Let Colds Catch You

WE TALK about "catching" cold just as if we pursued the horrid thing instead of being caught by it. And we speak lightly of one of the most annoying human ailments and call it "just a cold," even when we are suffering from that odious combination of tickling throat, running nose, stifled chest, shivers, scorchings and general irritability that characterizes "nothing but a cold."

The physical discomfort and partial incapacity resulting from any cold, should be sufficient reason for trying to avoid them, but the far-reaching effects of a persistent cold may be more serious than any temporary disturbance. Yet we don't think much about them until some member of the household is attacked. Then, indeed, we show how well-informed we are on the subject by suggesting that the patient should be more or less isolated from the rest of the family, should keep out of drafts, should avoid good things to eat and be let in for a sad time generally.

Doctors tell us that all this is sensible, but that the air, which we perforce must breathe, is at all times full of cold germs which only our own physical resistance enables us to throw off. The best safeguard against continual colds is keeping thoroughly "fit" at all times by means of proper diet, proper exercise and good health habits.

Yet, since accidents will happen, let your motto be "preparedness." If you feel the monster gripping you by the throat, make no delay but fall upon the enemy in good earnest and rout him thus:

Disinfect the throat and nose by gargling and sniffing some warm antiseptic. Take a hot bath, hot enough to make you look like a boiled lobster. This promotes perspiration and tends to throw off poisons through the pores of the skin.

Complete immersion in hot water, pepped up with mustard, is best, but a steaming foot bath is not to be despised. Jump right from the bath into the blankets, not the chilly sheets, and cover warmly. If you can take aspirin with impunity, ten grains will insure open pores and sound sleep.

Beg or bribe someone to bring to your bedside a pint of scalding lemonade with plenty of sugar. Oh! what a merciful alleviation this is from the simply awful doses of medicines of an earlier generation. In the morning you will awake with smiles and a clear head. With a cold, more than with almost any other ailment, it is the stitch in time that saves.

Farm Vies With Pharmacy

THE DECADENCE of our drug stores is sometimes deplored. Bargains in letter paper, perfumes, cosmetics and soft drinks masquerade under the sign of Pharmacy. It is a very hopeful indication that a business can no longer thrive on the sale of medicines alone.

We have begun to look to the farm rather than to the pharmacy for health. Nature has placed at our disposal all that is required to maintain us in health or restore it to us. Every need of the human body can be supplied by the fruit orchard, the vegetable garden, the livestock farm or fisheries.

These give us tissue building materials, energy producers and those mysterious food factors which have been likened to "the spark plug in a gas engine," the all-important vitamins. Only extremists advocate complete abandonment of the use of drugs, but the fact remains that many drugs formerly used are now held to be worthless or absolutely harmful. It is not only more healthy but far more appetizing to take our drugs fresh from the farm.

Every housewife should have some knowledge of medicinal and food values. She should beware of over-refinement in the materials she makes use of—the polished rice, the too-white flour, the degerminated grains which have yielded their precious vitamins to the popular demand for refined products that has been created by the propaganda of clever manufacturers.

Even our salt has had the iodine refined out of it, and now that magazines have taught us so much about goiter, we appreciate the value of iodine. As if by magic, "Iodine Salt" now appears on the shelves of choice groceries.

What the public demands will be furnished. Let us keep closer to nature. If we make wise use of what she offers, we need seldom call on the drug store save for those accessories which have crowded drugs clean off their counters.

If You Win You Lose

"WHAT'S in the goal? It's the game that is worth while." This truth is presented from a novel angle by W. L. George, the author, who asserts that married couples are more apt to stick together during the early years of financial difficulties and struggle than in the period crowned by success.

Some facts seem to bear out Mr. George in his conclusion that the vivid common interest, the united aim, the mutual desires, ambitions and sufferings of most young couples, bind them together more closely than their ultimate possessions. Divorce, he concludes, comes after the struggle, not in the midst of it. His examples suggest to us that plain boredom has much to do with the dissatisfaction of married people who have won their way to success.

There's a valuable thought here, but it leaves us rather on the horns of the dilemma. A loving wife may, as he asserts, always believe her husband to be talented. But hope deferred has a proverbially bad effect on the heart. Failure, too long drawn out, surely opens the way to suspicion of a lack somewhere. The husband is as open to this suspicion of himself as is his wife. Disappointment breeds discontent.

So, though success may tend to separate couples no longer united by the keen co-operation of early years, failure tends to separate the unsuccessful. It looks as if unbroken matrimony were beset by dangers. You may have suspected this before. The wisest will welcome the years of struggle and, while they are passing, husband and wife may find time to give a thought to means of escape from the "let down" of accomplishment. Frankly, Mr. George makes us nervous, but we thank him for the information that those who survive the first 20 years of united life, generally stick it out to the end.

In the scented breath of the morning-O,
When the windy grass went rippling far,
I saw my dear one walking slow
In the field where the daisies are.

We did not laugh and we did not speak
As we wandered happily to and fro;
I kissed my dear on either cheek
In the bud of the morning-O.

A lark sang up from the breezy land,
A lark sang down from a cloud afar,
And she and I went hand in hand
In the field where the daisies are.

—*James Stephens*

"Has anyone seen Pete?"
"Pete who?"
"Petroleum."
"Kerosene him yesterday and he ain't benzine since."—*Ex.*

By Mary Lee Adams

Beauty Enters Rural Homes

CONTRAST the charm and convenience of the average farm home today with that of a generation ago. The advance has been well nigh incredible. There are numerous factors which contribute to this tremendous change for the better. Though the standard of living has risen in both city and country, it is the rural home that shows the greatest improvement over former conditions.

In the first place, it is no longer remote. Railroads, the automobile, and good roads put almost everyone in touch with some center where stores offer endless suggestions for home improvement. The illustrated mail order catalogue plays no unimportant part in bringing to the attention of the housewife a thousand reasonably-priced articles of beauty and convenience.

Many admirably illustrated magazines open a new world to the simple country girl. They show to the eager reader enchanting pictures of perfect apartments which fairly make her mouth water. They enter into detailed descriptions of how such and such effects may be obtained, so that the housewife feels she could follow the directions as easily as she prepares a new dish from a cooking recipe.

In short, the rural woman is no longer rustic. Schools are spreading education as never before, and many of them lay special emphasis upon all branches of the art of home-building and keeping. Besides all these, there is the active propaganda of state and county agencies devoted to this special purpose.

Better Homes Contests

The annual Better Homes Contest was recently held in my county. Those who won no prize this year have gained experience which may enable them to take high place in next year's rating. These contests have perceptibly raised standards throughout our rural communities.

Farm and orchard women are busy women. Some of them are much restricted in means. If these handicaps are reinforced by associates whose own homes are neglected, or by a husband who is so indifferent to appearances as not to notice when she does try to "have things nice," it is 10 to one that the poor, disappointed soul will, by degrees, cease to exert herself in behalf of the beauty and convenience of her home.

Contest Encourages Her

The contest has a wholesome influence over the woman who might otherwise yield to discouragement. If she enters it, she has the comforting assurance that her efforts will not go unobserved, that they will not be quite thrown away.

Even if she fails to win a prize in the large field sometimes pitted against her, she has the pleasure of hearing her work commended by the judges—women who are trained to appreciate and value the very things she is striving for, women who not only take kindly note of what she has accomplished, but who gladly make sensible and useful suggestions for further improvement.

Not only this. The *will to do* permeates the entire neighborhood. Friends and acquaintances dropping in do not fail, as heretofore, to note any change and to comment upon it. Plans are sympathetically discussed and hints exchanged. What was once perhaps a thankless task becomes one of liveliest interest.

The Community Spirit

Little whiffs of fresh paint that greet the arriving guest are not adversely commented upon, and it becomes almost good form to wear a tiny smudge of surprising tint on the tip of the nose. What if one must dine today on the kitchen table while the dining room table is waxed and polished? The cheery new hangings offer consolation for a little temporary discomfort. As for those shavings, why they'll all be swept up and burned long before the judges come to admire the new home-made dresser.

It is a strong incentive that many other homes are making advances. Houses in which the orchard woman visits show a brighter and prettier aspect than before. If she would keep up with her social circle (and it is indeed a deeply discouraged woman who has lost this ambition), she must do her part toward advancing the standards of her community.

Open to All

A good feature of the better homes contests is that they are open to all. Obviously, if the prize were destined for the one who has the handsomest grounds, the most up-to-date and convenient kitchen, or the most charming living-room, a large proportion of women would be disqualified for lack of means to rival a more wealthy neighbor.

No such discrimination exists. The home, or such part of it as is to compete, is rated by the judges on their first visit and given a certain percentage of excellence. An interesting chat is then held with the homemaker and a campaign of improvement is sketched out. On the second visit of the judges, the award is made on the basis of the greatest improvement for the least outlay of money.

By this system, a very simple and remote home was enabled to win first prize. What a proud accomplishment this was for the energetic mountain woman who, with her own hands, had stitched, carpentered, painted and polished her home into an appearance of attractive comfort.

Her success was an inspiration to others, and very sweet and neighborly was the feeling of satisfaction expressed by those over whom she had won the prize. She deserved it, they said, and they were glad she got it. Surely the little woman's heart was warmed and her ambition stirred so that she will become a strong influence for uplift among her neighbors.

Things That Count

The truest benefits of improving the home, come in less obvious ways: in the quickened interest and deepened self-respect of the home-maker. Dr. Caroline Crane, in her better homes book, comments upon the crying need for women to appreciate the true dignity, value and purpose of home-making. She deprecates the mental attitude that leads many women, when asked what their business is, to say, "Oh, I'm just a housewife." She resents the slight of the United States census taker who records the names of home-keeping women as "Housewife: Occupation, None." Ye Gods! Unoccupied! What a misrepresentation of the average orchard woman's life.

Early impressions being the most lasting, the children are fortunate who see their mother concerned to make the very best of the home. Girls from such homes will not grow up slatternly or neglectful. Boys will not wound their future wives by belittling their aspirations for an attractive house. They will have unconsciously absorbed the idea that home improvement is important and, almost automatically, they will strive to keep up the early ideal.

Few parents, and no sensible ones, make the error of supposing that neatly kept grounds and attractive rooms make a home. The spirit of the home, its steadfast purpose and wholesome influence far out-weigh all else. But one may notice that these are rarely found in the home which shows careless neglect of outward things.

New Furniture at Small Cost

By Gertrude Woodcock

FEW FAMILIES can afford to buy new furniture to conform with each passing fad or fancy or even to discard old chairs and tables because they are tired of them. Every housewife, however, longs for a change of household scenery and pores over catalogues and advertisements of furniture with a hope that is often forlorn.

A miscellaneous array of furniture gradually collects in the average house, and the housewife who has been dusting and polishing the same old pieces year after year, frequently strangles her desire to take the whole outfit out to the wood pile and chop it into kindling wood.

Old furniture, however, need not be either endured or discarded—the two obvious alternatives. It may be refinished or painted an entirely different color, and at no great expense.

Save the Antiques

One word of warning about refinishing old furniture. If you own an antique chair or table,—few established families are without one or two pieces "handed down from grandmother,"—think twice before trying to refinish it yourself. Antiques require special treatment and finishes which should be applied by experts. Beautiful old furniture is valuable. It is a real investment to preserve it with proper finishes.

Ordinary furniture, however, is a simpler problem. If you wish to renew the original finish of the wood, follow this method:

Go over the surface of the chairs, tables or dressers with OO sandpaper or steel wool. Remove as much of the original finish as possible and then brush it free of dust and small particles. Then put on the first coat of stain or varnish. Allow it to dry thoroughly before putting on the subsequent coats.

If you wish to make a "smooth as glass" surface, rub it with linseed oil mixed with powdered pumice stone. Apply some oil and rub thoroughly.

The best way to change the whole aspect of the furniture, however is to paint it an entirely different color. In this way many unmatched pieces can be brought into harmony with each other. Furniture made of the soft woods, such as poplar, linden, or basswoods, is close-grained and takes a good paint finish. Birch and yellow pine also take an excellent paint finish.

Sandpaper Well Before Painting

Sandpaper the furniture all over before applying the first coat of paint, and be sure that the surface is absolutely clean. Three coats of paint are usually necessary. Each must dry thoroughly before the next is applied. A glossy finish may be obtained by adding some good varnish the last coat.

The wide variety of colors that paint makes possible is fairly astounding. Gray is one of the most popular for this work, especially for dining room and bedroom furniture. Black, too, is good, particularly when it is decorated with bright bands or flower motives.

One of the most charming bedroom sets imaginable was evolved from a miscellaneous hodge podge of unpainted chairs, old imitation oak dresser, iron bed, and nondescript table. All of these, except the bed, were painted a very pale yellow. The bed was enameled the same color and all the pieces had stenciled upon them gay little patterns of flowers in red, green, blue, orange, and purple. Clean rag rugs on the floor, gray blue paint on the walls and soft gray paint on woodwork and floors completed the room. Blue gingham curtains fluttered at the windows.

Sage green is excellent for furniture as it harmonizes well with the various designs used to decorate the pieces. Buff, of course, is always good. Two colors are often used, one for the main parts of the furniture and the other for the rounds of chairs, knobs, legs or spindles. For example, chairs may be painted gray with yellow rounds and tips.

Stencil Patterns May Be Used

The charm of painted furniture depends largely upon the decoration. Stencil patterns may be easily obtained for this purpose. Stencils are very easy to use and the results are excellent. Decalcomanias, too, are very successful. Most of us have played with them as children, and now, as grown-ups, we find them highly useful in beautifying our homes. They can be had in many stores and are easily applied with colorless shellac. Their designs sometimes are very handsome and look, when on the furniture, very professional indeed.

You may stripe or band your furniture, too, if you have a steady hand and a good eye. This is a more difficult process, however, but one that can be mastered after some practice. It is done with an artists' striping "pencil," which is really not a pencil but a long-haired soft brush.

New Furniture Often Improved by Painting

Furniture need not be old to be painted. People have come to appreciate the beauty and economy of painted furniture to such a degree that it is now one of the standard types on sale in stores. Plain, unfinished furniture is also sold and may be painted by the individual or by the local painter to conform with the family's tastes and needs. This furniture is very inexpensive and can be beautifully decorated so that it becomes a permanent joy and embellishment to any home. Painted furniture is not a temporary fad, in spite of its popularity. There has been painted furniture since revolutionary days; in fact, some of the handsomest and most admired chairs and tables in colonial museums are of the painted variety. Painted furniture has never lost its prestige; people merely lost sight of its advantages for awhile.

This type of furniture may be painted any color and decorated to suit the tastes of its owners. The color scheme may be changed entirely when the family tires of it—and at a very small expense. Painted furniture stands considerable wear and tear; it can be kept clean very easily, for a damp cloth will remove all smudges and dirt particles. The best part of it is that when you paint your furniture to suit yourself you know that it is entirely individual. There are not 49 other sets exactly like it on the market.

Address Mail Carefully

LAST year 21,000,000 letters and 303,000 parcels went to the dead letter office.

Each year about 100,000 letters are mailed in blank envelopes. Misdirected envelopes contain about $55,000 in cash and $12,000 in postage stamps each year.

Checks, drafts and money orders to the amount of about $3,000,000 never reach their destination due to incorrect or illegible addresses.

Uncle Sam collects about $92,000 a year in postage for the return of mail sent to the dead letter office.

Uncle Sam has an expense of about $1,740,000 each year to hire persons to take care of misdirected mail.

These figures should convince anyone of the desirability of carefully addressing each letter or package and of placing the return address on every piece of mail sent out.

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"Yes, and don't slam it on your way out."

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It was to meet the demand for a dependable pneumatic truck tire that Kelly-Springfield designed and built the Kelly Heavy Duty Cord. Heavier and sturdier than the passenger car tire, with more plies of cord fabric and an extra thick, tough, rugged tread, the Heavy Duty Cord is a real truck tire that is giving truck owners the sort of long, uninterrupted mileage they have learned to expect from all Kelly products.

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Service cannot stop

The telephone, like the human heart, must repair itself while it works. The telephone system never rests, yet the ramifications of its wires, the reach of its cables and the terminals on its switchboards must ever increase. Like an airplane that has started on a journey across the sea, the telephone must repair and extend itself while work is going on.

To cut communication for a single moment would interrupt the endless stream of calls and jeopardize the well-being and safety of the community. The doctor or police must be called. Fire may break out. Numberless important business and social arrangements must be made.

Even when a new exchange is built and put into use, service is not interrupted. Conversations started through the old are cut over and finished through the new, the talkers unconscious that growth has taken place while the service continues.

Since 1880 the Bell System has grown from 31 thousand to 16 million stations, while talking was going on. In the last five years, additions costing a billion dollars have been made to the system, without interrupting the service.

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The alphabet is numbered—A is 1, B is 2, etc. What two words are represented by the figures? (19 is letter S). SEND NO MONEY—just write the two words and your name and address. Prizes awarded April 5, 1926.
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E. L. BOEING, Mgr., Dept. 5348, 630 W. Jackson Blvd. Chicago, Ill.

Real Thanksgiving Spirit

THE REAL significance of Thanksgiving Day is too often lost sight of by most of us ordinary mortals, what with excitement over the coming family reunion and looking forward to Mother's Thanksgiving Dinner. The first Thanksgiving Day was observed by our Pilgrim Fathers with prayers of thankfulness for the first harvest in the new land—the harvest which meant food to tide them over the winter and until the next harvest. We, too, should be thankful for our bountiful harvests, fertile soils, seemingly inexhaustible resources and stable, honorable government.

Our Pilgrim forefathers also celebrated by feasting, but where with us the feasting has come to be the main meaning of Thanksgiving Day, to them the day was truly a time of thankfulness. I'm a firm believer in Thanksgiving dinners, but I advocate simpler meals—a variety of excellent food and plenty of it, but not a table groaning under the weight of every known kind of fruit, nut, vegetable, meat, pastry, relish and jelly. Relieve Mother of some of her work and let her have a chance to be properly thankful too.

Plan Meal in Advance

The meal should be planned well in advance, and all necessary ordering and purchasing should be done early. No housecleaning other than the daily brushing up should be done in the last week. Fruit cakes should be baked six weeks beforehand. Cranberry jellies can be made a week or two weeks early and sealed in glasses with paraffin. The turkey or goose should be prepared for roasting on Tuesday before the Big Day if it is to be partially roasted on Wednesday, otherwise it should be fixed ready for the oven not later than Wednesday.

All vegetables should be selected, trimmed and washed the day before. Some member of the family should start peeling potatoes, scraping carrots, peeling turnips, etc., early on Thursday. One of the boys may bring up from the fruit room jars of needed canned fruits and vegetables. He may shortly before dinner open cans of olives, vegetables and fruits. Mother should divide up the work and assign to each member of the family some useful task. The daughter of the house may lay the dinner table and arrange the centerpiece of fruit or flowers. She can also arrange individual salads and look after service dishes, having the dinner plates and vegetable dishes hot and dessert and salad plates cold. Mother will have enough to do roasting the turkey, seasoning vegetables, making gravy and garnishing all dishes for the table.

Four Courses Ample

A simple menu of delicious food, simply yet nicely served, should be the rule for the feast. Four courses are ample—a clear soup or fruit or oyster cocktail, the main meat, vegetable and relish course, salad course and dessert. The first course and all relishes may be on the table when the family is seated. After the soup or cocktail has been eaten the dishes are removed from the left, two at a time. Then the roast, dressing and gravy should be placed before Dad's plate for carving and service. Vegetables may be served from the head of the table or may be passed to each guest in turn. The latter method saves time. The salad may be placed on the table with this course, just in front of the plate, or may be brought on after the dishes from the main course have been cleared away. After this course, remove all service dishes, then plates and silver, and brush up the crumbs.

The dessert plates and dessert will be placed before Mother for serving. Coffee may be poured at a side table and passed to each person, followed by cream and sugar, or Mother may pour and serve each member of the family in turn. Some other member of the family should tend to the removing and bringing on of courses and let Mother enjoy the meal she has spent so many hours in preparing.

With careful planning, thorough preparation in advance, simpler meals, and plenty of help from other members of the family Mother should be able to achieve a dinner which will equal, if not excell, the old-time "something-of-everything" type and still have enough energy left to enjoy the feast herself. Then the whole family can feel the real spirit of Thanksgiving.

Improving the Taste of Cranberries

MOST people enjoy the tart, piquant flavor of cranberries if they have been properly prepared to eliminate bitterness. Washing the berries in warm water to which a teaspoonful of common baking soda has been added will remove that objectionable trace of bitterness. Cranberry jelly may be made up in rather large quantities and sealed in jelly glasses with paraffin. Then it may be unmolded on a lettuce leaf when wanted to add just the right flavor to some meal. Cranberries for pie will be improved by the soda rinse.

Cranberry Sauce

Pick over and wash 3 cups of cranberries, using warm water to which soda has been added, as suggested above. Rinse and drain and put in a granite saucepan with 1¼ cups of sugar and 1 cup of boiling water. Simmer for about 10 minutes, skim and cool for serving.

Cranberry Jelly

Pick over and wash 1 quart of cranberries as for cranberry sauce. Rinse and drain. Then add 2 cups boiling water and boil for 20 minutes. Rub through a sieve, add 2 cups hot sugar and cook for 5 minutes more. Turn into glasses and when cold cover with paraffin. Store until needed.

Variety at Breakfast

FRUIT, cereal, toast and coffee—these comprise the breakfast of many and many a family the year around. They form an excellent combination of foods on which to start the day but are apt to become a bit monotonous unless variations are introduced. Certainly they will become monotonous if the same kind of cereal is served every morning and the same kind of bread used for toast. There is just as much chance for variety at breakfast as for luncheon or dinner.

Readers of the AMERICAN FRUIT GROWER MAGAZINE should have no difficulty in solving the problem of variety in fruit. Fresh fruits of every kind should be available for the table in season, direct from the orchards and berry gardens. Then, in the winter when fresh fruits are scarce and

expensive, the thrifty housewife will have her many jars of delicious canned products on which to draw. Dried prunes, apricots, apples and figs when properly soaked and stewed in plenty of water are popular breakfast fruits. Certain fruits, such as oranges, grapefruit and pomegranates, which may not be native to the reader's particular locality, may well be purchased frequently in the winter season. Canned pineapple is a tropical product that should find its way to the farm dining table more often.

Serve Different Cereals

Certain families form cereal habits which may be all very well for a time, but which are apt to lead to uninteresting monotony sooner or later. I have seen families purchase a 10-pound sack of rolled oats or cracked wheat and eat that particular cereal every morning for breakfast until the sack is empty. Then they buy a new sack, possibly of something else. A better plan would be to keep a variety of both uncooked and prepared cereals on hand, serving several different ones each week. The hot "mush" prepared at home contains more real food value and is better for growing children than the ready-to-serve kind that comes in packages, but the latter type is all right occasionally.

Toast may be varied by the use of whole wheat or raisin bread. Then there is cinnamon toast, brown sugar toast and the ever-popular French toast made by dipping slices of bread in a salted egg and milk mixture and frying until browned nicely on a griddle. Hot breads and hot cakes are always appreciated by the family, but should not be served too often. Variety may be achieved in hot breads by serving biscuits, muffins made from white, graham or corn meal flours or a mixture of two of them, popovers, corn bread, gems or light bread buns heated in the oven. Waffles will become even more popular with the family than hot cakes once they have been tried.

"Ham and" a Favorite

In many farm homes a heavier breakfast is demanded, which usually means ham, eggs or bacon or possibly both "Ham and," in addition to the fruit, cereal, bread in some form and beverage. Some "Near Irish" families even insist on potatoes every morning. Eggs may be served in many ways, including omelets, poached on toast, soft boiled, scrambled and fried. The omelet is improved by the addition of bits of ham or strips of bacon, when it becomes ham omelet or omelet striped with bacon.

These are just a few suggestions which should help the busy farm housewife solve part of the eternal "What'll we have to eat" problem. They should at least start her imagination going along a new line so she can achieve greater variety with the materials at hand.

Thanksgiving Dinner Recipes

IT IS appropriate that this month's recipe department be given over to Thanksgiving delicacies. Certain recipes will be wanted for the preparation of the dinner and I have tried to assemble practical, tested recipes for the things usually included in the menu. If you have old favorite recipes with which you are familiar, stick to them, but if you want a recipe from a new source, these will be worth trying. Recipes for fruit and combination vegetable salads are not included, as they can always be made from materials at hand.

Roasting the Turkey

Dress, clean, stuff and truss the turkey. Place on side on rack in roaster, rub entire surface with salt, and spread breast, legs and wings with ½ c. of butter rubbed until creamy with ¼ c. flour. Place in hot oven without pan lid and when flour on turkey begins to brown, reduce heat and baste every 15 minutes until turkey is cooked. For basting, use ½ c. butter melted in ½ c. boiling water and after this use the fat in the pan. Pour water in the pan if needed to prevent flour from burning. Turn turkey frequently. If bird browns too fast cover with buttered paper or place roaster lid on pan. Remove string and skewers before serving, place on platter and garnish.

Onion Stuffing

1½ c. stale bread crumbs	1½ t. salt
	¼ t. pepper
1 c. boiling water	½ c. finely cut onion
½ c. giblet broth	½ c. melted butter

Pour water and broth over bread and let stand 20 minutes, then squeeze out all the water possible. Add remaining ingredients and mix thoroughly. Pack breast and body cavity of bird with stuffing. If it is a very large turkey, the quantity of dressing will have to be increased.

Oyster Stuffing

1½ c. stale bread crumbs	1 pt. oysters
	¼ c. oyster liquid
1½ c. cracker crumbs	2½ t. salt
	½ t. pepper
½ c. melted butter	¼ t. mace

Mix bread and cracker crumbs and add melted butter, oysters, oyster liquid and seasonings. Oysters may have tough muscles removed for this purpose.

Gravy

Pour off liquid in pan in which turkey has been roasted. Skim off 6 T. fat and return fat to pan and brown with 6 T. flour. Pour on gradually 3 c. stock in which giblets have been cooked or use liquid left in roaster. Cook 5 minutes, season with salt and pepper, strain. For giblet gravy, add the heart, liver and gizzard finely chopped.

Glazed Sweet Potatoes

Wash and pare 6 medium-sized potatoes. Cook in boiling salted water until tender. Drain, cut in halves lengthwise, and put in buttered pan. Make syrup by boiling 3 minutes ½ c. sugar and 4 T. water and add 1 T. butter. Brush potatoes with syrup and bake until brown, basting twice with syrup.

Fruit Cocktail

Remove pulp from grapefruit and mix with grated pineapple, bananas cut in slices and the slices quartered, and oranges cut in small pieces. Sweeten with powdered sugar, place in glasses, garnish with a Maraschino cherry or other preserved red fruit, and chill. Serve cold as an appetizer.

Pumpkin Pie

1½ c. steamed, strained pumpkin	½ t. salt
	2 eggs
¾ c. brown sugar	1½ c. milk
1 t. cinnamon	½ c. cream
½ t. ginger	

Add sugar and spices to pumpkin, then add eggs slightly beaten, milk and cream. Line pie pan with rich paste, building up a fluted rim if desired. Bake in quick oven at first to set rim, then decrease the heat and bake in moderate oven. Serve warm with sweetened whipped cream on each portion. Other spices as nutmeg and mace may be used in the pie.

Mince Meat Pie

Mix together 1 c. chopped apple, ½ c. raisins seeded and chopped, ½ c. currants, ¼ c. butter, 1 T. molasses, 1 T. boiled cider, 1 c. sugar, 1 t. cinnamon, ½ t. cloves, ½ t. nutmeg, ¼ t. mace, 1 t. salt. Add enough stock in which meat was cooked to moisten; heat gradually to boiling point, and simmer 1 hour; then add 1 c. chopped meat and 2 T. barberry or currant jelly. Cook 15 minutes. Bake in double crust pie in quick oven. Mince meat pies may be baked a day or so early and warmed over when wanted. Serve warm.

Rich Mince Meat Pie

2 lbs. lean beef	¾ lb. finely cut citron
1 lb. beef suet	
Baldwin apples	1 pt. grape juice
1 large quince	1½ t. cinnamon and mace
1½ lbs. sugar.	
1 c. molasses	1½ t. ground clove
1 qt cider	1 grated nutmeg
2 lbs. raisins, seeded and cut in pieces	½ t. pepper
	Salt to taste
1½ lbs. currants	

Cover meat and suet with boiling water and cook until tender, then cool in water in which they are cooked; the suet will rise to top, forming a cake of fat, which may be easily removed. Chop the meat fine and add it to twice the amount of finely chopped apples. The apples shou'd be quartered, cored and pared previous to chopping. Add the quinces finely chopped, sugar, molasses, cider, raisins, currants and citron; also suet and stock in which meat was cooked, reduced to 1½ cups. Heat gradually, stir occasionally and cook slowly 2 hours; then add grape juice and spices. Bake in rich double crust pie and warm up at serving time. This recipe for mince meat makes sufficient for several pies.

Prune Whip

½ lb. prunes (15 prunes)	½ c. sugar
	½ T. lemon juice
Whites 2 eggs	½ c. whipped cream

Pick over and wash prunes and let soak over night in cold water to cover; cook in same water until soft, remove stones and rub fruit through a strainer, add sugar and cook 5 minutes. The mixture should be of the consistency of marmalade. Beat the egg whites until stiff and fold in prune mixture when cold. Fold in whipped cream and add lemon juice. Pile lightly in glasses and put in cool place until served. The whip should not be made up too long before serving.

Table of Abbreviations

1 t. equals 1 teaspoonful.
1 T. equals 1 tablespoonful.
1 c equals 1 cupful.
1 pt. equals 1 pint (2 standard cups).
1 qt. equals 1 quart (2 pints).
1 lb. equals 1 pound.

All measures are level.

Thanksgiving 1925

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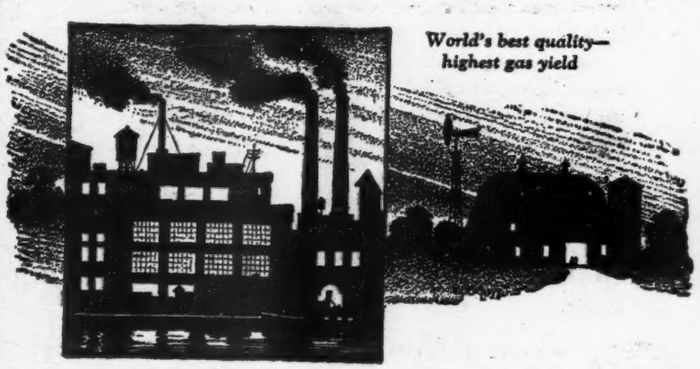

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Engineering for the Fruit Grower

By E. W. Lehmann

Selecting Lighting Equipment

AS THE days grow shorter and the nights longer the need of adequate light is felt by every farmer. Good lighting not only makes the farm house more attractive, but it also increases the efficiency of the worker in doing the chores, reduces the danger of fire, and makes conditions better for the boys and girls in school. Proper selection of lighting equipment is, therefore, important.

The farmer who can get electricity from a power line to light his barns, his house and yard is indeed fortunate. Where such service is not available, the small electric plant will fill a great need. Others will look to some form of gas for supplying light. Few are so fortunate as to own a gas well, and the majority must depend on acetylene or other form of gas.

Select Safe Lighting Equipment

In selecting lighting equipment, there are certain principles that must be kept in mind. Some of the more important factors involved are safety, utility, and beauty. Select lighting equipment that is mechanically safe and has passed the censorship of the National Board of Fire Underwriters. There is a certain amount of hazard in the use of all kinds of equipment; proper installation and proper care in the use of equipment are important in reducing this danger.

Probably the most important factor that should be kept uppermost is the factor of utility. Every piece of lighting equipment should have a value of usefulness as well as beauty. Sometimes the utility value of a special lighting unit may be decorative for a special occasion. The old-fashioned candles, for example, that were a most important part of the lighting equipment of our grandparents, now have a part in many decorative effects. Candles would be of little real value if they did not throw a beam of light. Beauty and utility should go hand in hand. The value of one is made greater by the other.

Many Good Portable Lamps

No farm home need depend on the old-fashioned flat wick kerosene lamp to dispel the darkness and gloom of the winter nights. There are now many inexpensive reading lamps on the market that produce excellent illumination. The value of lighting equipment after all is measured by how it helps one to see. Many kerosene and gasoline burning table and hanging lamps will flood a room with light and provide illumination almost equal to that produced by the best electric lights. Of course, such lamps are not as convenient as electric lights, and the element of danger is greater.

Consider the Needs of the Room

In selecting lamps or fixtures the needs of the particular room or condition should be considered. In some cases only general lighting is needed while under other conditions special lighting must be provided. In most rooms of the home both special and general lighting should be provided. General lighting does not take care of the need at the sewing table, the piano, or the desk. Select special fixtures that will take care of these needs.

No buyer of lighting fixtures should overlook entirely the important factor called fashion. Old dame fashion is a dictator, and much equipment may be mechanically perfect but of little commercial value because it is out of date. In trying to follow the fashion, one must not overlook the need of selecting those things that will be in keeping with the rest of the home. Too elaborate fixtures are out of place in a modest home.

Checking Up on Machinery

THE FACT that the farmer and fruit grower must be his own mechanic to a large extent, as well as purchasing agent, business manager, efficiency expert, etc., makes him liable to neglect the important item of his physical equipment. Since such a large part of the cost of agricultural production is made up of labor and power, he cannot afford to overlook his machines which play so large a part in the efficient use of labor.

The best time to take an inventory of the needs of a machine is when you are through with it for the season. The next best time is when the machine is no longer needed and is being stored away until next year. The fact that the farmer's machinery is needed seasonally makes a higher cost per unit of work than machines of production in factories that are used each day in the year. The farm machine therefore represents a high unit cost and this is reason enough why every machine should be in first-class order when taken on the job.

Check the old machines for new parts needed, and order the parts in ample time so they will be on hand and may be installed well in advance of the time the machines are needed in the field. The only way a dealer can know exactly what you want to make your equipment complete is for you to tell him.

It is also well to investigate the possibilities of new machines some time before they are needed. The difference between the man who studies his equipment and knows his needs and the man who doesn't is that one buys equipment and the other has it sold him. The latter is usually the expensive method.

Tag Machines for Parts Needed

If machines are inspected but are to be repaired at a later date, it is a good idea to put a tag on them indicating the parts to be renewed and the adjustments to be made to put the machine in first-class shape. The best time to tag a machine for repairs is when it is used the last time. The needs of the machine are well in mind then. A year later some of its shortcomings may be overlooked until it is again taken into the field for work. Then time taken out for repairs is costly.

Many Uses for Concrete

CONCRETE as a building material is being used more and more each year, both in building construction in town and in the country. It is bringing the farmer closer to town by eliminating the mud roads, and is making possible additional market centers. Due to the high price of lumber and the fact that concrete materials, with the exception of cement, may often be secured locally, it is finding a greater place in farm building construction and many other uses on the farm.

Concrete may be used in combination with other materials or it may be used alone. A foundation wall of concrete can be made water tight; it is permanent and attractive. Concrete is effective in repelling rats in all structures. About the home it may be used in constructing sidewalks, water tanks, hot beds, cistern and well covers, septic tanks, fruit storage cellars, etc.

Concrete fence posts, when properly made, are more nearly permanent than other kinds of posts, and they are fireproof and attractive. Many railroad companies are using concrete posts along their right of way. This indicates that they compare favorably with other kinds of posts. There are quite a variety of posts as to shape. The simple rectangular type with beveled edges, which can be constructed by a farmer in a form that may be easily built, is as satisfactory as any other type. A blue print plan for

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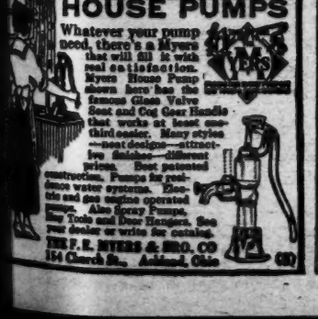

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such a form may be secured from the Farm Mechanics Department of the University of Illinois, Urbana, Ill., at a cost of 10 cents.

One of the best sources of information on all types of concrete construction is the Portland Cement Association of Chicago, Ill. This organization has a farm service department made up of well-trained men whose purpose it is to give the best information available on all types of concrete construction on the farm and to see at all times, as far as possible, that every piece of concrete work is properly made.

Clean the Heating Equipment

IF YOUR heating equipment has not been cleaned and repaired, don't neglect it until cold weather sets in and then find it necessary to shut down the fires entirely, on a zero day, to do a job that should have been done earlier.

Besides the loss of fuel in attempting to heat a house with a dirty furnace, there is always danger of fire due to burning soot and to neglected smoke pipes and flues. The same is true of heating stoves and ranges.

Either a furnace or a cooking range will not heat well if the heating surfaces are covered with soot or finely divided particles of ashes and dust. A similar coat of soot in the flue or the smoke pipe will reduce the draft and result in poor heating.

It is sometimes necessary to call in a heating man or a professional chimney sweep to get the furnace thoroughly cleaned. When this is being done, inspect it carefully so that defective parts may be renewed. Proper care of heating equipment at this time should result in a greater degree of comfort throughout the entire winter.

Put on Insulating Material

Often the asbestos covering on the furnace and pipes comes loose. This can easily be renewed with a small amount of paste. Asbestos paper is inexpensive and should be put on in several thicknesses to be effective.

The Value of a Tractor

THE SUMMARY of information secured from tractor owners shows that the tractor's greatest value is in saving time. When the farm work is rushed and time is at a premium, it is worth a great deal to be able to get a job done promptly. Although motive power is rapidly displacing the horse for all types of road work, it will be a long time before the horse is displaced entirely for field work. We must think of the tractor then as a partner to the horse in doing the draft work of the farm and in making the farmer more efficient.

The greatest difficulty is to bring about the most economical balance of power on the farm when a tractor is purchased. Many farmers do not sufficiently reduce the number of horses or they do not increase their acreage sufficiently to be able to use the power efficiently. The tractor relieves the horse of heavy plowing when the ground is hard and the weather is hot. The tractor makes possible larger units and therefore more rapid performance of operations which must be done at the busy time. Longer hours are possible when conditions justify it. Many farmers operate their tractor night and day when occasion demands. This cannot be done with horses.

The fruit farmer finds that the small low type tractor has advantages over the horse in cultivating orchards. The machine is under positive control and it can be put where you want it. While belt work may not be a factor on fruit farms, it is often desirable to have a machine for belt work.

"Do you love me?"

"Madly."

"Would you die for me?"

"Er—no. Mine is an undying love."

—*Ex.*

How I Earn Money At Home

And In This Way Make Up For George's Shrinking Salary

"It helped us over the hard spots by turning spare hours into extra dollars"

Every Wife or Self-Supporting Girl Can Use Extra Money. Many Are Now Making It Themselves—Right at Home —How Auto Knitting Pays Three Ways.

By MARY WHITMAN

"MY dear, you should have seen her at church this morning. She looked positively 'dowdy.' It's a shame. Mary used to be such a well dressed girl—until she married that bank clerk. I should think he'd feel—"

"Sh-h-h! She's on this car. Over there behind you. She might hear."

But I *had* heard and my face flushed red with resentment and shame. It was true—I *did* look 'dowdy'—and I knew it.

I got off the street car at the next corner and walked the remaining blocks to my home—and George. My cup of bitterness had spilled over, and I needed a few minutes to choke back my tears that wanted to run down my burning cheeks.

I didn't want to make George feel worse than he did already about our money situation. My husband is one of the "white collar men" whose salaries haven't kept pace with the mounting cost of living. I had sometimes hinted to George that I would be glad to take my old position again, but he had always vetoed the idea strenuously.

But the bitter experience of this Sunday morning was too much. I resolved as I walked home I was going to find a way to make extra money for clothes.

When I got home I was prepared to be cheerful as usual, but George was comfortably smoking and absorbed in his Sunday paper, and his contentment somehow irritated me terribly. To make matters worse he held up the magazine-picture section of the paper as I came into the room, and remarked that he had never seen the girls wear "such good-looking duds as they do this year."

I lost my temper, snatched the paper from him and cried, "If you like to see nice clothes so much, why don't you buy your wife some of them?"

Then I rushed to my room, still carrying the magazine section of the paper, shut the door, and threw myself across the bed for a good cry. George came and knocked and spoke to me, but I wouldn't let him in.

After a while I sat up, and idly began to turn the pages of the paper I had taken away from George. All of a sudden I sat up straighter and gasped. A woman was looking out of the page at me, holding a bank check in her hand, and across the top of the page were the words, "How I Make Money—Right at Home—Auto Knitting Pays Three Ways."

That night I mailed the coupon from that advertisement of The Auto Knitter Hosiery Company.

To make my story short, I found their prospectus so convincing and reasonable that I sent for and received the wonderful little machine, the Auto Knitter.

While George was at the bank, I used it every minute I could spare from my housework. At the end of a month I sent my first shipment of soft, warm, well-knit wool socks to the company's hosiery department. By return mail came a check in payment.

Well, I kept on knitting socks—but after a little while not many of them went to the company, for when I let my friend Gracia into my secret and showed her the socks, she immediately exclaimed: "I know where we can sell them right here in town and nobody need even know who made them." It worked out fine. I sold them and soon had calls for more. I found I could make more money selling them in this way than I could sending my standard socks to the company.

Then one day, as we were ready to go out, I presented myself before George in a pretty, new accordion-pleated frock which I had seen advertised in Park & Taylor's sale and a fancy little sweater I had made up myself with the aid of the Auto Knitter.

His mouth opened wide and he just stared at me in admiration. Finally, he managed to say: "Where did you get them, Mary?"

"I earned them myself," I replied brightly, not just sure how he would take the news.

"The sweater, too?" he inquired, and I knew he was thinking what an extravagant lot such a sweater must have cost.

"Well, the sweater—" I answered, "the sweater I really made myself!"

"But, Mary, I didn't know you could knit like that!"

"I couldn't by hand, George," I replied, "but I learned to do it another way."

George looked for a moment as if I had said I had stolen my new things. But then I made him sit down and listen to my story.

Then I took the light, portable Auto Knitter out of the closet and showed George how it worked. I had had enough practice by that time, so that I made a sock so quickly that George's eyes almost dropped out of his head.

"And you say the Company's hosiery department will buy the socks from you?" he asked.

"Yes," I replied, "they will take my entire surplus of standard socks at a guaranteed price, but the best of it is that I can sell my work right here at home and make even more than by sending it to the company, to say nothing of the money I can save by making our own knitted wear just as I made this sweater."

George was certainly astonished, said he had no objection to my continuing the work. In fact, he was secretly proud of my ability. So I kept right on making clever little knitted articles for my daughter, socks for George and knitted novelties for home sale. When spring and summer came, I took up the knitting of fancy, sport and golf stockings, so that I really had very little knitting to sell to the company, although they helped me in every way, even sending me a booklet telling how to build up my own home knitting business.

Now, I can have the pretty things I want for myself, for Helen and for the house—and I don't have to feel "guilty" when I buy them, because I am not obliged to touch a cent of what I call "the family money"—the money that George makes.

Whenever I hear a woman complaining about the high cost of living and clothes, I always try to tell her how the Auto Knitter will help her to make and save money at home in spare time.

No matter where you live, I feel sure that you want to know all about the Auto Knitter that has meant so much to us. By all means write to The Auto Knitter Hosiery Company at once and find out about this home industry waiting for you. Find out what others have done with the aid of the Auto Knitter and what it offers you. Send your name and address on the coupon below—no obligation of any sort. The Auto Knitter Hosiery Company, Inc., Dept. 21911, 630 Genesee St., Buffalo, N. Y.

The Auto Knitter Hosiery Co., Inc.,
Dept. 21911, 630 Genesee St., Buffalo, N. Y.

Send me full particulars about Making Money and Saving Money at Home with the Auto Knitter, telling how Auto Knitting Pays Three Ways. I enclose 2 cents postage to cover cost of mailing, etc. It is understood that this does not obligate me in any way.

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Address
AMERICAN FRUIT GROWER MAGAZINE
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CHICAGO

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SELL ARTICLES WHICH REPEAT AND ON which you can build up a permanent business. You can do it with "Zanol" Products, a high-class line of Soaps, Perfumes, Flavors, Coffee, Tea, Baking Powder and other purefood products and household necessities. Write today for new money-making plan. American Products Co., 4100 American Bldg., Cincinnati, Ohio.

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HUNDRED HUNTING HOUNDS. FUR CATCHers. Catalogue. Kaskaskennels, B-62, Herrick, Ills.

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FOR SALE—88-ACRE FRUIT FARM AND nursery in northern Iowa. 10 acres bearing and 10 acres 4 year old winter apples. 6 acres small fruits and grapes. 5 acres thrifty nursery stock, including several varieties of Iowa Station seedlings. Young business but established and paying. Personal reasons for selling. Address K-111, American Fruit Grower Magazine, Chicago.

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ALFALFA, PEACH AND STOCK FARM, 360 acres in fertile Red River Valley. Modern home and equipment, healthy climate. Profitable proposition with great future. $10,000 cash, $15,000 easy terms. J. F. Marine, Armistead, Louisiana.

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WANT A GOVERNMENT JOB? $95 TO $250 month. Men—women, 18 up. Steady work. Short hours. Vacation. Common education sufficient with our coaching. Experience unnecessary. Full particulars and list positions free. Write immediately—today sure. Franklin Institute, Dept. K89, Rochester, N. Y.

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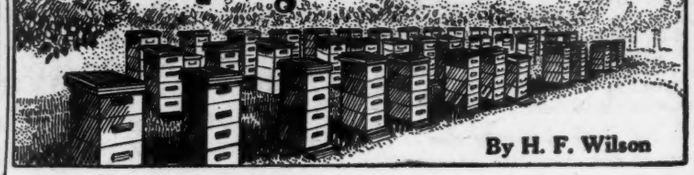
McCARTY'S OIL EMULSION—PERFECT DORmant spray. Experiments show 99.5 per cent scale control. Much cheaper than other sprays—pleasant to use—mixes readily with water. (Ask any of our customers in several states.) (We manufacture it.) J. A. McCarty Seed Co., Dept. A, Evansville, Ind.

BOYS & GIRLS CHRISTMAS MONEY GIVEN
Send name and address. We will send you 60 new Christmas Seals. Easily sold 10 cts. a set. You keep $2; send us $1. Be first in your neighborhood. We trust you. Many earned $10 last Christmas. Write at once.
MISTLETOE SEAL CO., Dept. 2, Brooklyn (R) N. Y.

Bee Keeping for Fruit Growers



By H. F. Wilson

Honey Grading

AN IMPORTANT development in the honey industry is the announcement made by the Bee Culture Laboratory and the Bureau of Agricultural Economics of the United States Department of Agriculture that a honey grader has been perfected which will quickly and accurately determine the color grade of any sample of honey. This is important to the beekeeping industry because aside from the source of the nectar, all honey is graded on a basis of color. A number of graders have been on the market, but none of these has proven to be exact, and there has always existed the opportunity for argument between the producer and the buyer. Now that an exact grader has been made, it will be possible to settle disagreements without question as to accuracy.

How the Grader Works

The manner in which this grader works is by means of a wedge-shaped vessel in which the sample of honey to be graded is placed. This in turn is compared with an inversely placed wedge of amber glass. The two wedges can be seen simultaneously through a slit which permits light to pass through from the rear. When the color of the honey and that of the glass wedge are the same, the color grade of the honey is shown on a scale containing the standard commercial grades of extracted honey.

The chief objection to this grader is its high cost, which will permit only a few beekeepers to own graders. They are to be sold by a New Jersey company, and will cost about $40 each.

However, the Bee Culture Laboratory at Washington announces that they will be glad to determine the color grade of any sample of honey. A sample of at least four ounces of well-strained honey in a good mailing tube should be sent in. Mr. Hambleton writes that there will be no charge made for this service. It is quite likely that each state bee-keeping department will soon acquire one of these grading devices, which will make it possible for beekeepers in nearly every state to have tests quickly made.

A series of seven standard commercial grades of honey have been recommended to the United States Bureau of Markets by the American Honey Producers' League, and these will undoubtedly be those recommended for use by the United States Bureau of Markets. Grades likely to be established are: water white, white, extra light amber, light amber, amber, dark amber and dark. These seven colors will be sufficient to cover the ranges of practically every honey produced in the United States, and when the source of nectar on the flower from which it comes is indicated, it should be possible for beekeepers and the buyers to have a very clear understanding of what they are selling or buying. With definitely established grades and standard graders, it will be possible to give the buying public a much better explanation of the variable differences in honey. This has been impossible in the past, and the general public has been made somewhat suspicious by the great variation in the color and flavors of honey.

Use of Honey in Food

THERE are many important ways in which honey may be used in food. Honey has considerable health value when used in the raw state, since in that condition none of the vitamines or enzymes are destroyed.

Here are a few of the ways in which honey may be used to make some very satisfactory dishes. All of these recipes have been tried out and found to be practical by a honey tea room in Madison, Wis.

Honey Banana and Nut Salad

Take a medium-sized banana and peel, lay on salad plate properly garnished with lettuce. Take a grapefruit knife and dig a small groove down the center of the banana. Scrape out enough banana to form a channel about one-sixteenth of an inch deep. Fill this cavity with honey and in the honey drop little pieces of walnuts. Drop a little honey mayonnaise across the banana in the center and decorate with a piece of cherry. The honey gives the banana salad a very distinctive and satisfying flavor.

Honey California Cherry Salad

Pit large California cherries. To one package of Philadelphia cream cheese, add one tablespoonful of honey; mix thoroughly. Fill cherry centers with this cream cheese and honey mixture. Arrange five of these stuffed cherries on a bed of lettuce. Garnish with fresh strawberries that have been rolled in honey. Allow to remain in refrigerator for about half an hour in order to properly chill before serving. Place three little hills of whipped cream about cherries, drizzle a bit of honey over cherries and whipped cream. A dash of paprika on the little heaps of whipped cream adds a great deal to the color scheme of the salad.

Honey Cherry Pudding

1 tablespoonful Crisco
1 egg
1 cup honey
½ cup cherries (sour)
¾ cup milk
2 teaspoonfuls baking powder.
2 cups flour

Blend Crisco or shortening and honey together. Beat egg thoroughly and add to blended honey and shortening, then milk, then ½ cup cherries (drained), then flour in which baking powder has been sifted. Bake in flat cake tin. This cake should be about an inch high. Serve hot with the following honey cherry sauce:

Honey Cherry Sauce

1 cup cherry juice
3 tablespoonfuls flour
2 cups boiling water
⅛ cup cherries
2 tablespoonfuls butter
1 cup honey

Mix butter and flour. Pour over this two cups boiling water. Blend thoroughly. Add cherry juice and cherries, stirring continuously while over flame. When completely mixed, remove from fire, add the honey and serve over the honey cherry cake given above.

Honey Nut Brownies

2 eggs
½ cup honey
2 ounces chocolate
¼ cup butter
½ cup sugar
½ cup flour (sifted with ¼ teaspoonful baking powder)

Butter and chocolate should be melted together, then add honey, then flour and baking powder, then nuts. Bake 45 minutes in a slow oven. For immediate use, it is better to use ½ sugar and ½ honey. Cut in strips about ½ inch wide and three inches long.

To pack away in jar, use all honey instead of part sugar, and do not use until after two weeks. Roll strips in powdered sugar before serving.

Honey Date Strips

3 eggs, well beaten
1 cup honey
1½ cups flour
1 teaspoonful baking powder
1 teaspoonful vanilla
1 cup chopped nuts
1 pound chopped dates.

(Concluded on page 34)

$3,068.80
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First prize—1925 Ford Touring car. Besides this splendid first prize we are going to give away 37 other prizes.

Rearrange the figures in the above square in such a manner that they will count 15 each way (horizontally and vertically) and send us your answer together with your name and address neatly written on a sheet of paper and if your answer is correct we will at once mail you a splendid illustrated prize list describing the prizes and giving full information and rules. In case of ties general appearance, neatness and handwriting of entry will be considered factors. If correct we will advise you by return mail of a simple condition to fulfill. Don't send any money. You can be a prize winner without spending one cent of your money.

Send your answer—act quickly.

The Northwest Poultry Journal
400 South Commercial,
Salem, Oregon. 12-25

Classified Advertisements

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FISTULA—HORSES CURED, $5. SEND NO money until cured. Coan Chemical Co., Barnes, Kansas.

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FRUIT TREES, GREATLY REDUCED PRICES direct to planters in small or large lots by express, freight or parcel post. Free catalog. Peaches, apples, plums, pears, cherries, grapes, nuts, berries, pecans, vines. Ornamental trees, vines and shrubs. Tennessee Nursery Co., Box 101, Cleveland, Tenn.

ALFRED BLACKBERRIES ARE 1½ INCHES long, three inches around. Coreless, hardy, bears heavily. Full prices reduced over 60%. Catalog free. George Stromer (Originator), New Buffalo, Michigan, R. 1.

100 THOUSAND CHOICE APPLE, PEACH, cherry, pear, plum trees. Shrubs. On leased land. Has to be moved. Greatly reduced prices for first quality stock. Can ship C. O. D. Lee H. Graves, Farina, Ill.

FOR SALE—60,000 ELBERTAS, WILEY BELLE, and Brackett. Per thousand, 2 to 3 ft., $70.00; 3 to 4 ft., $80.00; 4 to 5 ft., $90.00. Trees state inspected and true to name. J. T. and B. H. Copeland, Shiloh, Georgia.

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INVENTIONS COMMERCIALIZED, WHAT HAVE you? Adam Fisher Mfg. Co., 531 Enright, St. Louis, Mo.

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LOOK, HERE — GUARANTEED, FRAGRANT, mellow, rich, homespun tobacco. Five pounds chewing, $1.50; smoking, $1.25. Samples, 10c. Clark's River Plantation, Hazel, Kentucky.

LEAF TOBACCO—CHEWING, 5 LBS., $1.50; 10, $2.50. Smoking, 5 lbs., $1.25; 10, $2.00. Guaranteed. Pay when received. Pipe free. Albert Ford, Paducah, Ky.

KENTUCKY HOMESPUN TOBACCO — FOUR pounds chewing or five smoking, $1.00, postpaid. Sample new sorghum free. Clements-Wettstein, Chambers, Ky.

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WANTED—TO HEAR FROM OWNER OF FARM or unimproved land for sale. O. Hawley, Baldwin, Wis.

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TYPEWRITERS, $10 AND UP. PAYMENTS. Yotz Typewriter Co., Shawnee, Kansas.

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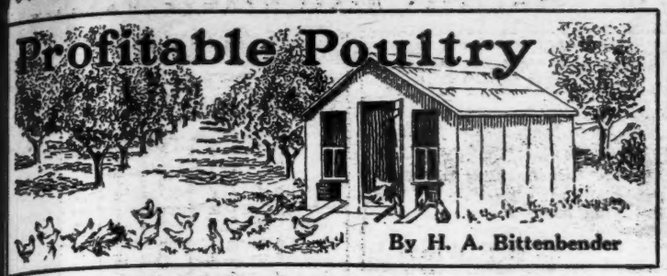
"Saved About $15," says L. M. Boswell, Jamestown, N. Y. You, too, can save. We Pay Freight. Write for Free Catalog. Farm, Poultry, Lawn Fence, Posts, Gates. KITSELMAN BROS., Dept. 100 MUNCIE, IND.



By H. A. Bittenbender

Increasing Winter Egg Production

A FEW suggestions in regard to the methods of obtaining winter egg production might be helpful. It is not always a question of how much feed, what kind of feed, or the type of chicken house that will determine the number of eggs that are to be obtained during the winter months. As a matter of fact, one cannot point out one single factor that is absolutely the governing one in controlling egg production. A brief statement of many of the factors, which control to a large degree the number of winter eggs obtained from the flock, will be given at this time.

Management

It is necessary to have pullets of strong vigor and vitality that mature by the first of November or not later than the first of December. To get the growth necessary, the pullets must be well fed on a balanced ration during the fall months so that when they are put in winter quarters they will have the necessary maturity and flesh to come into the laying condition before cold weather sets in.

Without doubt the greatest evil in winter poultry management is overcrowding of the poultry house. Under farm conditions at least three square feet of floor space should be provided for each bird. In order to obtain the use of the entire floor space of the house, a board may be placed under the roosts to prevent the droppings from contaminating the litter. If the dropping board is placed 30 inches high and is not more than six feet in width, it will not be dark underneath the dropping board. To insure equal distribution of light over the floor, a window may be placed under the dropping board. In putting a window on the north side of the house, extreme care must be taken that it is put in tight to prevent possible drafts.

It is necessary to have the house constructed so that direct sunlight reaches as much of the house as possible. Ventilation must be thorough and without drafts. In order to secure the right amount of ventilation, the front, which should be on the south side, should be arranged so that direct sunlight, unintercepted by glass, and fresh air may be admitted as occasion demands. Part of the front of the house can be covered with Cel-O-Glass placed on frames so that during the daytime it can be raised and during severe and stormy weather closed. If at any time frost collects on the inside of the house, it is a warning that proper ventilation is not being obtained. Fowls can stand a great deal of cold, provided it is dry, but they cannot stand dampness, which is always found in poorly ventilated houses.

Feed

The feed necessary for economical winter egg production is not particularly hard to obtain, but it is desirable that a variety be provided. We might describe the feeds and the methods of feeding in the following manner:

The whole grains, a ground mash, animal food, green food, oyster shell, grit and water are all necessary for the hens in the winter time. In the summer, or when the chickens are given liberty of the farm, it is not hard for them to obtain practically all of these ingredients, but in the winter time they must be supplied in some available form. Shelled corn, two parts, and whole oats, one part, make a satisfactory scratch grain to be fed in a deep litter of straw, chopped corn-fodder or similar material.

A suitable ground mash can be made by mixing the following:

100 pounds ground oats.
100 pounds ground corn.
100 pounds bran.
100 pounds gluten.
100 pounds flour middlings.
30 pounds dried buttermilk.
50 pounds high protein meat meal or tankage.

Under most conditions it will probably pay to add a mineral mixture of from five to seven per cent. This mash is kept before the birds in an open self-feeding hopper all of the time so that they may have access to it to balance up with the grain which is fed to meet the requirements of their bodies.

Green food can be supplied in the form of silage, roots, soaked or sprouted oats, steamed clover or alfalfa. Grit can be supplied by scattering a layer of sand over the floor of the chicken house. Oyster shell should be kept before the birds in some kind of an open container, also an ample supply of drinking water. If liquid milk is available, the dried buttermilk may be omitted from the mash.

A suggestion, perhaps, might be worth while as to the amount to feed. A statement based upon the figures obtained at the Iowa Experiment Station shows that Rhode Island Reds and that class of chickens consume approximately one pound per bird per week of the grain feed, shelled corn and whole oats. During the four winter months of November, December, January and February, they consumed two-thirds of a pound per bird per week of the mash.

Leghorns and lighter breeds consume considerably less, approximately seven-eights pound of grain per bird per week and one-half pound per bird per week of the mash during the winter period.

The proportion of grain to mash may be varied according to the condition of the birds. If the birds seem to be loosing weight, increase the amount of grain feed. If they appear to be getting too fat, reduce the amount of grain feed so as to increase the mash consumption. During the winter months it is very essential that the birds go onto the roost with a well-filled crop of scratch feed.

Disease

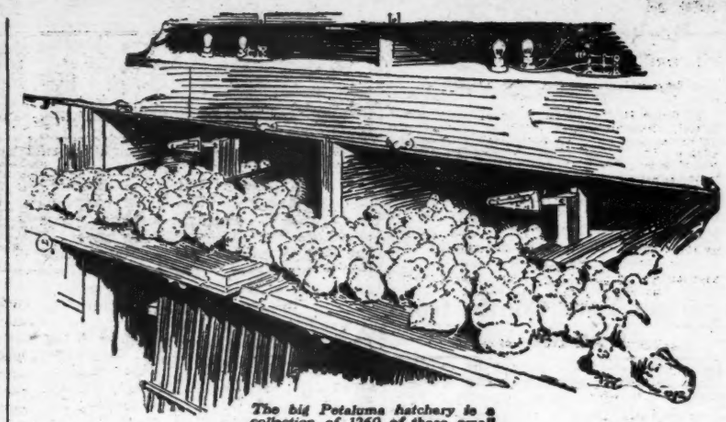
Colds, catarrh, roup and the like can best be kept out of the flock by controlling drafts and providing sunlight and thorough ventilation. As soon as any bird shows evidence of being out of condition, it should be removed from the flock. An occasional use of an intestinal antiseptic should be given, such as bichloride of mercury in the proportion of one 7.3 grain tablet to each gallon of drinking water. (Do not use drinking vessels that are metal.) This will oftentimes prevent the spread or the outbreak of serious trouble.

Teacher—"Willie, did your father whip you for what you did in school yesterday?"

Willie—"No, ma'am; he said the licking would hurt him more than me."

Teacher—"What nonsense! Your father is too sympathetic."

Willie—"It's not sympathy, ma'am; it's rheumatism."



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This "electric hen" covers 560,000 eggs

The world's largest electric hatchery, with a season's output of 3,000,000 baby chicks, is now in operation at Petaluma, California.

Electric fans circulate the electrically heated air, maintaining a uniform temperature for the 560,000 eggs covered by this "electric hen" at a setting.

Hatching and brooding chickens by electricity is now an established practice, not only in big commercial plants, but on small poultry farms where electricity is available.

At peak load the Petaluma Hatchery uses 800 horse-power of electricity, generated in the plant of the Pacific Gas & Electric Company, and delivered through G-E transformers. The hatchery is ventilated by G-E motored fans.

GENERAL ELECTRIC

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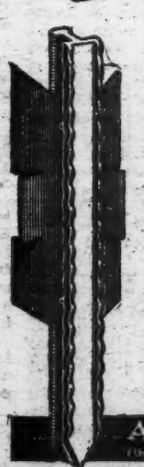

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Be safe and sure. See that your hard-earned property remains YOURS! Protect it and improve the value of your whole place with American Fence and Banner Steel Posts.

GUARANTEE

Our dealer will hand you with every purchase of fence our written guarantee that it will equal or outlast in service any other fence now made, of equal size wires used under the same conditions.

BANNER STEEL POSTS

Easy to drive—no holes to dig. They root themselves firmly into the ground with the large Banner slit-wing anchor plate. Railroad design—the strongest known form of construction. Ask the American Fence Dealer in your town.

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American Fence and Banner R.R.RAIL DESIGN STEEL Posts

American Steel & Wire Company

Chicago New York Boston Birmingham Dallas Denver Salt Lake City

Beekeeping for Fruit Growers

(*Continued from page 32*)

Mix egg and honey; stir in beaten eggs. Add baking powder and flour sifted together, and add chopped dates and nuts. Bake in long, flat tin. Mixture should not be more than one-fourth inch high; when baked will be about one-half inch high. Cut in strips one-half inch wide and three inches long. Pack away in crock; roll in powdered sugar before serving.

Protect Your Combs from Wax Moths

IN STORING your combs for winter, be sure that no wax moths are permitted to remain in the supers. This is especially true if the combs are to be stored in a warm basement or cellar. Each comb should be looked at carefully, and if any signs of wax moths are present, the entire lot should be fumigated with carbon bisulphide, which can be secured at a local drug store. In preparing to fumigate, stack the supers in piles of six or seven, and have a tight cover on each stack. Provide a measuring cup that will hold one ounce of carbon bisulphide. For each stack of six or seven hives, pour one measure of the liquid in on the frames of the top super. The fumes of the carbon bisulphide work downward and quickly penetrate into every crevice and space in the combs. If the hive bodies are stored in a mothproof room, one treatment will be sufficient, but if there are cracks or crevices through which the moths may enter, then a second fumigation should be made some two or four weeks following the first. Carbon bisulphide is explosive. Be careful not to bring lighted matches or cigars into the room where the fumigation is going on.

Give Your Bees Plenty of Stores for Winter

DO NOT forget that if you neglect to provide ample stores for winter, you cannot have good colonies of bees next spring. Each colony should contain at least 25 pounds of sugar syrup or honey stores when put in winter quarters.

Rambles of a Horticulturist

(*Continued from page 7*)

industry. Already it has practically wiped out the avocado groves around Homestead on the east coast. All over lower Florida in the citrus sections one sees groves broken up into sub-divisions. In many cases of this kind the owners or sub-dividers have discontinued caring for their groves. Furthermore, some grove owners, anticipating early sale of their groves, are tightening the ropes on the care of them. All of these things, taken together, will no doubt reduce the average quality of Florida fruit. Co-operatives and dealers should give especial attention to this matter and grade the fruit carefully to overcome the obstacle as far as possible. Some help will be derived during the coming winter from the fact that the crop is from 25 to 40 per cent short this year due to a poor bloom and to the citrus aphis. The reduction in yield caused by sub-division is probably offsetting the increase in production from new groves coming into bearing.

J. B. Richards of Maitland, Fla., formerly fellow county agent with the writer in Illinois, gave me a day of his valuable time and showed me many groves and things of interest in and around Orlando. Mr. Richards is developing a nice grove near Maitland and is also doing some real estate work in connection. He is rapidly making himself known among the Florida growers and is a director of the Orange County Sub-exchange of the Florida Citrus Exchange.

Insect Control and Cultural Methods

A government experiment station is located at Orlando. F. A. Wolf, D. C. McBride, W. J. Bach and H. R. Fulton kindly explained the work in progress. Important service has been given Florida growers in the control of many insect pests and diseases, including the citrus aphis, melanose, scale, etc. The station has a large assortment of species and varieties of citrus fruits which is very interesting.

County Agent Kime of Orange county gave me sufficient of his time to explain the cultural methods most commonly practiced. Since most of the land is quite sandy, heavy fertilizing is necessary. Three applications are made a year, one in February, a second in June, and the third in November. Each time from 25 to 40 pounds of high-grade complete fertilizer are broadcasted under the trees and worked into the soil. Clean cultivation is practiced all winter. A cover crop is started in June. Crotolaria is giving excellent satisfaction. Cowpeas are also popular. Many growers sow no cover crop but allow beggar weed or native grass to grow up after cultivation is stopped. The cover crop is plowed under in November as a rule, following which clean cultivation is practiced all winter.

State Citrus Station at Lake Alfred

After visiting the Orlando section, I stopped at the state experiment station at Lake Alfred, which is near Winter Haven. Superintendent J. H. Jefferies kindly showed me the work in progress. A considerable quantity of citrus seedlings growing in a propagating house showed marked variations in size; this result agrees with that obtained in California. Mr. Jefferies showed me a special propagating frame developed at the station. By means of this, it has been possible to root citrus cuttings quite successfully, about 75 per cent of them taking root. In the field rather large plantings of citrus trees were in evidence. The most interesting thing to me was the effect of various root-stocks on the growth and quality of oranges. Rows of oranges propagated on different stocks showed important differences in size of trees and character of the fruit. Rough lemon stock produces the most vigorous and the earliest fruiting trees and the largest fruit, but the fruit is rough and of inferior quality on most soils. The quality can be influenced to some extent by cultivation. Sweet orange stock causes the trees to retain the fruit well, the fruit is of good quality and the trees reach good size, but the roots are susceptible to root rot. Planting the trees somewhat shallow will help to eliminate this trouble. Sour orange stock produces trees resistant to root rot and the fruit is of high quality.

There is a great deal of discussion among citrus growers about rootstocks. Most of them think the sour orange stock is best. However, the growers in Polk county take serious exception to this. They have made money from trees propagated on rough lemon stock, and they claim this is the best stock. Persons in other sections concede that the Polk county growers, because of their soil, can probably grow a better orange on rough orange stocks than growers in most other places, but at the same time many of them feel that the superior quality of fruit from other sections has helped Polk county to get better prices for its fruit than would be the case if it were the only kind of fruit going out of Florida.

Fruit and Produce Auction

(*Continued from page 10*)

ing has prevailed. Some have had the impression that most of the products sold at auction are of poor quality, damaged, or in bad condition, and must be sold immediately at any price. It is believed that this misconception is diminishing rapidly. In fact, one good effect that the auctions have on the fruit and vegetable industry is that they encourage uniform grading and packing in standardized containers. As a rule, produce offered in any other way cannot be handled profitably through auctions.

More commodities would probably be sold at auction in volume, the study indicates, if it were not for present methods of financing crop production by dealers. In some instances auction companies have made advances to growers or shippers to assist in financing shipments intended for auction.

Wide Assortment of Buyers

Practically all classes of the wholesale buying trade are represented at the auction, so that a buyer can be found at some price for each line offered if the goods have some merchantable value. The commodities are sorted into "lines" so the buyer at auction can get the variety, grade and size he wants and is not compelled to purchase something he does not need along with it. A few commodities are not adapted to auction selling for various reasons and in some instances conditions are such that it does not seem likely that these commodities will soon be sold at auction. Motor trucks are mentioned as being a factor of increasing importance in the development of the auction. Some of the truck lines have extended their delivery operations from 30 to 50 miles outside the markets. In Chicago, eight motor truck line operators purchased nearly eight per cent of the two and three-quarter millions of packages sold by one auction company during one year.

Auctions Are Good Indicators of Market Values

The auctions exercise a considerable influence as an indicator of market values, says the Department of Agriculture. The auction prices, made public immediately after the sale by trade publications, by newspapers, and by price-realized catalogs published by the auction companies, are used to a large extent as the basis for market reports issued by governmental and private agencies. Prices realized by the auction sales on well-established auction commodities are reflected directly in street sales.

Some companies operate on a strictly cash basis. Most of the companies guarantee the solvency of their buyers and settle with the receivers within 24 or 48 hours after the sale so that any losses from bad accounts are borne by the company.

The shipping point inspection certificates now issued co-operatively under federal and state auspices have made possible the development of the F. O. B. auction, that is, the sale in advance of arrival of cars in transit. During the first six months of the operation of these F. O. B. auction companies, they had sold an aggregate of nearly 9000 cars of fruit and produce valued at more than $6,000,000.

Vermont Society Holds Orchard Meet

(*Continued from page 10*)

and poorest of nursery trees usually made poor orchard trees, and that the bigger and better trees made better fruit trees in the orchard in the long run.

The package and basket question was discussed by President F. C. Holbrook of Brattleboro. Mr. Holbrook believes that a 14-quart basket or smaller package for local trade is almost ideal, but that the general market trade is not yet ready for anything but the standard bushel box and the standard barrel.

Following the program, an orchard tour was taken to many other interesting orchards in Addison county, which is famous for its good orchards. The Belmont Orchards of C. L. Witherell at Shoreham and at Cornwall proved an inspiration, as were also those of W. A. Stalker at Shoreham and William J. Anderson. Mr. Witherell has made a specialty of the Red Delicious and the McIntosh and had some very fine crops on display. An apple sizing machine was in operation at the Belmont Orchards.

The Vermont State College of Agriculture was well represented by J. L. Hills, Dean and Director of the college and station; Thomas Bradlee, Director of the Extension Service; and Prof. M. B. Cummings, Horticulturist.

Drought's Effect on Peach Crop

By C. A. Whittle

A DROUGHT of unusual duration and intensity recently befell the peach growing section of Georgia and the Carolinas. This drought did not materially affect the crop gathered in June and July. In fact, the crop was fairly heavy and the prices obtained remunerative.

But the effect of the drought will no doubt be felt on next year's crop. The bud wood is scant as a rule, scantier in some cases than it should be.

One reason the Georgia peach crop of next year will not be as large as it might have been, is that grass was allowed to compete too freely with the trees for the available moisture. In other words, some of the orchards have not been thoroughly cultivated, and the grass took moisture which the trees have needed very much during the drought season for providing bud wood growth for next year's crop.

Another reason is that the fertility of the soils has not been kept up in some of the orchards. The main reason for this is probably the loss sustained by growers on the 1924 crop, this loss reducing their ability to make the usual applications of fertilizer.

One of the compensations of the drought has been the reduction of losses due to rot. The shipping quality of the southern peach for the past season has been good, also due in a measure to the dry weather.

Florida Appropriation for Citrus Aphis Work

DURING the past year the state of Florida spent $10,000 for citrus aphis control, an insect which has become quite serious in the last couple of years. Because of the necessity for immediate action, the State Plant Board appropriated this money from the emergency appropriation of $50,000 made primarily for citrus canker control. This action was well taken, considering the importance of the citrus industry to Florida. More money could well be expended on investigations of the citrus aphis, and it would seem that the plant board would be justified in spending another $10,000 for developing better control methods for this serious pest.

Provide Good Drainage for Peach Trees

IN PREPARATION for the winter, don't forget to clear the grass and weeds from around your fruit trees. This will probably prevent a great deal of mice injury.

In the case of peach trees and certain other tender fruits, it is advisable to mound the earth around the trees to prevent water from standing near them. We have known serious winter killing to result from water standing in low places about the trees.

THE FALL planting of fruit trees and most small fruits in New York is not approved by the New York Agricultural Experiment Station. An exception is made in the case of gooseberries and currants. These two fruits shed their leaves early in the fall and start growth very early in the spring. Furthermore, they are quite hardy. Therefore, fall planting will prove successful with them.

The reason fall planting of most fruits in New York is discouraged by the station is because the winters frequently come on quickly, resulting in severe damage unless the soil and moisture conditions are exactly right. Such losses do not occur every year, but tests show that they happen often enough to make fall planting inadvisable.

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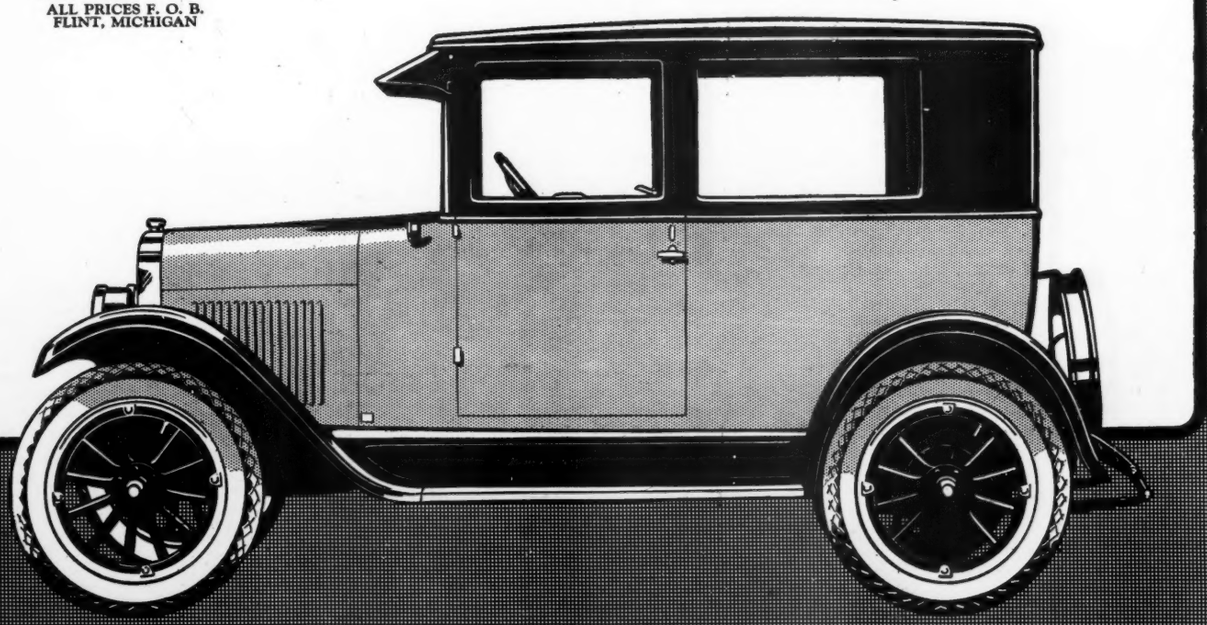

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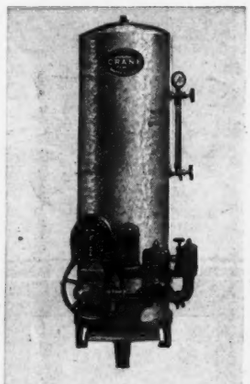

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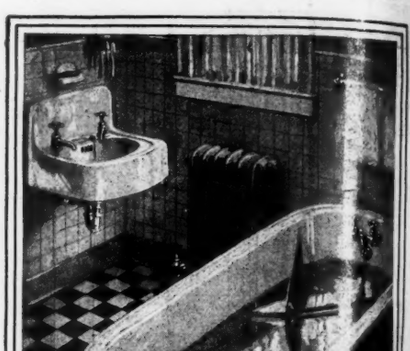

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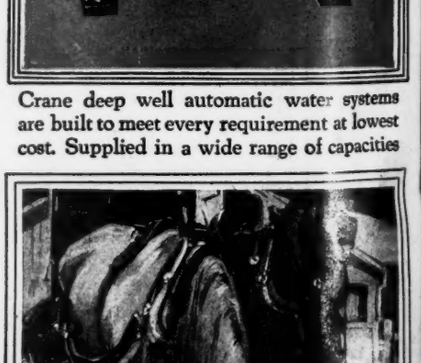

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